BEFORE

THE PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 88-11-E - ORDER NO. 88-864 A

JULY 9, 1990

IN RE: Application of Carolina Power & Light Company for General Increase in Rates and Charges.	)))	ORDER ON REMAND

On May 16, 1990, the Court of Common Pleas of Richland County, the Honorable Hubert E. Long, Presiding Judge, issued an Order remanding this matter to the Public Service Commission of South Carolina to point to the specific factual basis of record for its findings of fact. The Commission, therefore, reissues its Order No. 88-864, setting forth below its findings of fact accompanied by the evidence in the record supporting each finding.

On March 1, 1988, Carolina Power & Light Company (Applicant, Company, or CP&L) filed an Application with the Public Service Commission of South Carolina (the Commission) seeking authority to adjust and increase electric rates and charges for retail customers served by the Company in South Carolina. The Application sought rates that would produce approximately $47.8 million of additional annual revenues from the Company's South Carolina retail operations when applied to a test period consisting of the 12 months ended September 30, 1987, for an approximate 14.90 percent increase in total South Carolina retail rates and charges. The Company requested that increased rates be allowed to take effect after approval by the Commission but no later than September 1, 1988.

The principal reasons set forth in the Application necessitating the requested increase in rates were: (1) the need to include in rates the Harris Plant investment deferred pursuant to the Commission's Order in Docket No. 87-7-E, Order No. 87-902; and (2) the need to recover the costs associated with adding new transmission and distribution factilities, maintenance and modification work at generation facilities, and other increases in the Company's overall cost of providing service.

Petitions to Intervene were received from the South Carolina Department of Consumer Affairs (the Consumer Advocate); the South Carolina Energy Users Committee (SCEUC); Shaw Air Force Base, South Carolina, on behalf of the Federal Executive Agencies of the United States (Shaw); and Nucor Steel, a Division of Nucor Corporation (Nucor).

By memorandum dated February 19, 1988, the Commission notified the Company to prefile with the Commission and serve upon all parties of record on or before March 15, 1988, the testimony and exhibits of the witnesses it intended to present. On March 15, 1988, the following testimony was filed:

1. A Panel consisting of Sherwood H. Smith, Jr., President, Chief Executive Officer and Chairman of the Board of Directors of CP&L; M.A. McDuffie, Senior Vice President - Nuclear Generation for CP&L; and Roland M. Parsons, Project General Manager - Completion Assurance for CP&L's Harris Project;

2. Dr. James H. Vander Weide, President of Financial

Strategy Associates and Research Professor of Finance and Economics of Fuqua School of Business, Duke University;

3. Thomas S. LaGuardia, President of TLG Engineering, Bridgewater, Connecticut;

4. Paul S. Bradshaw, Vice President and Controller of CP&L;

5. David R. Nevil, Manager--Rate Development and Administration in the Rates and Service Practices Department of CP&L; and

6. Norris L. Edge, Vice President--Rates and Service Practices Department of CP&L.

On May 17, 1988, the Commission issued a memorandum notifying the parties that a prehearing conference of the parties of record would be held in the offices of the Commission on June 10, 1988, at 11:00 a.m. On May 31, 1988, the Commission issued a memorandum requiring that the Commission Staff and all other parties of record except the Company prefile with the Commission and serve on all parties on or before June 13, 1988, the testimony and exhibits of the witnesses intended to be presented. On June 3, 1988, Nucor requested an extension of time until June 15, 1988, to file prefiled testimony which was granted by the Commission on June 6, 1988. The prehearing conference was held as scheduled on June 10, 1988.

On or about June 15, 1988, the following testimony was filed: for the Consumer Advocate - Philip E. Miller, Utility Regulatory Consultant; Dr. Michael J. Ileo, Technical Associates, Inc.; and John B. Legler, Professor of Banking and Finance, University of

Georgia. For the South Carolina Public Service Commision Staff - A.R. Watts, William C. Sheely, Jr., Dr. R. Glenn Rhyne, and Curtis Price. For Nucor - F. Kenneth Iverson, Chairman of the Board and Chief Executive Officer, Nucor Corporation; Charles Komanoff, Komanoff Energy Associates; a panel consisting of John T. Stiefel, Stiefel Associates, Inc. and James P. McGaughy, Jr., GDS Associates, Inc.; and Dr. Dennis W. Goins, Potomac Management Group. For the South Carolina Energy Users Committee - Nicholas Phillips, Jr., Drazen-Brubaker & Associates, Inc., and Kenneth W. Stueber, DuPont Company. For Shaw Air Force Base - Richard I. Chais, ORI, Inc.

In a procedural Order dated June 17, 1988, the Honorable Franklin E. Robson, Esquire, Administrative Law Judge, ruled that the appearance of panels of witnesses would not be allowed because of due process considerations. Accordingly, on June 22, 1988, the Company filed a letter designating the division of responsibilities among its individual witnesses originally filing testimony as a panel.

Thereafter, pursuant to notice duly provided in accordance with applicable provisions of law and with the Commission's Rules and Regulations, a public hearing relative to the matters asserted in the Company's Application was commenced in the offices of the Commission on June 27, 1988, the Honorable Franklin E. Robson, Esquire, Administrative Law Judge, presiding.[1]

William F. Austin, Esquire, Robert W. Kaylor, Esquire, Richard E. Jones, Esquire, and Edward M. Roach, Jr., Esquire, represented the Company; Steven W. Hamm, Esquire, Raymon E. Lark, Jr., Esquire, and F. David Butler, Esquire, represented the Intervenor, the Consumer Advocate; Arthur G. Fusco, Esquire, appeared on behalf of SCEUC; Francis P. Mood, Esquire, and Garrett A. Stone, Esquire, appeared on behalf of Nucor, Intervenor; G. Edward Welmaker, Esquire; and Major Gary A. Enders, appeared on behalf of Shaw; and Sarena D. Burch, Esquire, Staff Counsel, represented the Commission Staff.

On July 8, 1988, and July 11, 1988, the Company filed rebuttal testimony of M.A. McDuffie and Roland M. Parsons of CP&L and Dr. Robert Spann of ICF, Inc.

The public hearing before the Commission was completed on July 13, 1988. The Administrative Law Judge granted leave to all parties to file briefs or proposed orders with the Commission. Briefs or proposed Orders were to be filed by August 5, 1988. A night hearing was held in Darlington, South Carolina on July 21, 1988.

Based upon the verified Application, the testimony, and exhibits received into evidence at the hearings and the entire record of these proceedings, the Commission now makes the following

1.The Administrative Law Judge presided over the procedural aspects of the proceeding, pursuant to S.C. Code Ann. §58-3-60 (1976), as amended.

findings of fact:

FINDINGS OF FACT

1. CP&L is engaged in the business of developing, generating, transmitting, distributing, and selling electric power and energy to the general public within the northeastern area of South Carolina and a broad area of eastern and western North Carolina.

2. CP&L is an electric utility organized and operating in the States of South Carolina and North Carolina where it is engaged in the generation, transmission, distribution, and sale of electricity to the public for compensation. The Company's retail operations in South Carolina are subject to the jurisdiction of this Commission pursuant to S.C. Code Ann. §§58-27-10 et seq. (1976). The Company's retail operations in North Carolina are subject to the jurisdiction of the North Carolina Utilities Commission (hereinafter "NCUC"); the Company's wholesale operations in South Carolina and North Carolina are subject to the jurisdiction of the Federal Energy Regulatory Commission (hereinafter "FERC").

3. The test period for purposes of this proceeding is the 12-month period ended September 30, 1987, adjusted for certain known and measurable changes.

4. CP&L, by its Application, is seeking an increase in its basic rates and charges to its South Carolina retail customers of $47.8 million.

5. The one-hour summer coincident peak (1CP) demand

allocation methodology is the most appropriate method for making jurisdictional allocation of production costs and for making fully distributed cost allocations among customer classes in this proceeding. Consequently, each Finding of Fact appearing in this Order which deals with the overall level of rate base, revenues, and expenses for South Carolina retail service has been determined based upon the 1CP allocation method.

6. The appropriate operational revenues for CP&L for the test year under present rates and after accounting and pro forma adjustments are $322,664,000 for service to the South Carolina retail jurisdiction.

7. The Commission finds that the costs of the Harris Plant were prudently incurred. In so doing, the Commission specifically finds that the Harris Project was prudently managed by CP&L; that CP&L's choice of the general arrangement of the Plant was prudent; and that CP&L adequately explained the reasons for cost increases to the Plant. The Commission further finds that an equitable sharing of the risks of some common facilities' costs through amortization without a return being earned on the unamortized balance is appropriate.

8. The reasonable level of test year operating revenue deductions for the Company after pro forma adjustments and the Harris Deferral is $254,671,000.

9. The reasonable rate of return on common equity that CP&L should be allowed an opportunity to earn is 12.75 percent, and this

is the percentage that the Commission adopts for this proceeding. Combined with the debt and preferred cost rates and the normalized capital structure set forth in the table below, which the Commission finds reasonable, the overall rate of return is 10.48 percent.

Item	Percent	Weighted Rate	Cost
Long-Term Debt	47.82%	8.62%	4.12%
Preferred Stock	7.46%	8.75%	0.65%
Common Equity	44.72%	12.75%	5.71%
TOTAL	100.00%	-	10.48%

10. The reasonable allowance for total working capial and materials and supplies in rate base is $30,159,000.

11. CP&L's reasonable original cost rate base used and useful in providing service to the public within the State of South Carolina is $804,023,000, consisting of electric plant in service of $1,053,723,000; net nuclear fuel of $28,758,000; plant held for future use of $2,562,000; materials and supplies of $16,990,000; and allowance for working capital of $13,169,000, reduced by accumulated depreciation and amortization of $204,888,000, accumulated deferred income taxes of $105,376,000, and customer deposits of $915,000.

12. Based upon the foregoing, CP&L should increase its annual level of gross revenues under present rates by $24,980,000. The annual revenue requirement approved herein is $347,644,000 which

will allow CP&L a reasonabe opportunity to earn the rate of return on its rate base which the Commission has found just and reasonable.

Class of Service	Approved Increase
Residential Service Class	$ 9,154,903
Small General Service Class	9,952,405
Large General Service Class	5,828,196
Lighting Service Class	44,496
TOTAL RATES	$24,980,000
Other Electric Operations	-0-
TOTAL JURISDICTIONAL (Retail Electric)	$24,980,000

13. The rate designs, tariffs, riders, and service regulations approved by the Commission and the modifications thereto as described herein are appropriate and should be adopted.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 1 AND 2

The evidence supporting these findings concerning the Company's business and legal status is contained in the Company's verified Application and in prior Commission Orders in this Docket of which the Commission takes notice. These Findings of Fact are essentially informational, procedural, and jurisdictional in nature; and the matters which they involve are essentially uncontested.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 3 AND 4

The evidence for these findings concerning the test period and the amount of the revenue increase requested by the Company is contained in the verified Application of the Company and the testimony and exhibits of CP&L witnesses Smith, Vander Weide, Bradshaw, LaGuardia, Nevil, and Edge.

On March 1, 1988, the Company filed an Application requesting approval of rate schedules designed to produce an increase in gross revenues of $47.8 million. The Company's filing was based on a test period consisting of the 12 months ending September 30, 1987. The Commission finds that this test period is appropriate and should be approved.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 5

The evidence for this finding concerning the proper production allocation method consists primarily of the testimony and exhibits of Company witness Nevil, Commission Staff witness Sheely, SCEUC witness Phillips, Consumer Advcoate witness Ileo, and Nucor witness Goins.

CP&L provides service in two states as well as wholesale service to certain municipalities and electric membership cooperatives and supplemental service to North Carolina Eastern Municipal Power Agency (NCEMPA). For this reason, it is necessary to allocate the cost of service among jurisdictions and among customer classes within each jurisdiction. In this proceeding, the Company based its application on the use of the one-hour coincident peak (1CP) method, as directed by the Commission in its order in the Company's last rate case, Docket No. 87-7-E.

Commission Staff witness Sheely and Nucor witness Goins supported the continued use of the 1CP method. SCEUC witness Phillips testified that the 1CP method was appropriate for CP&L. He stated that the Commission has consistently ordered the use of the 1CP method for CP&L in South Carolina. In addition he again recommends the use of the minimum system technique for determining the customer-related cost component of its distribution system as he did in Docket No. 87-7-E.

The Commission finds, based on the evidence submitted by the Company, Staff, and SCEUC, that a 1CP demand allocation methodology is most appropriate for CP&L and therefore adopts that methodology for allocation of production level demand-related costs. The Commission finds that CP&L's cost-of-service studies have provided ample support for the determination of all issues in this case and it is therefore unnecessary for CP&L to provide alternative studies, as requested by the Consumer Advocate, at additional cost to the ratepayer. The Commission also finds that the request of SCEUC witness Phillips concerning use of the minimum system technique should be denied as it was denied in Order No. 87-902, Docket No. 87-7-E, p. 68.

Another allocation issue relates to the appropriate demand to include in the 1CP allocation factor as a result of industrial customer Nucor taking service under Rider No. 58. Nucor witness Goins suggested that because Nucor had begun to take service under Rider No. 58, the Curtailable Service Rider, a pro forma adjustment should be made to the test year 1CP value to reflect a lower demand for the South Carolina retail jurisdiction. Nucor's position is that CP&L made a revenue adjustment to reflect the reduction in revenues CP&L would receive from Nucor due to its electing to take service under Rider No. 58, and CP&L should also make a corresponding adjustment to the allocation factor. Nucor testified that as an alternative, should the Commission not allow the allocation factor adjustment, the Revenues adjustment of $2,222,734 should be disallowed. The Commission finds that the proposed revenue adjustment of $2,222,734 is not sufficiently known and measureable to be accepted for the purposes of this proceeding based on the testimony of Nucor witness Iverson that Nucor's election to take service in Rider No. 58 was on a trial basis and therefore disallows the adjustment. In light of this finding, Nucor's proposed allocation adjustment is not appropriate.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 6

The evidence for this finding concerning the adjusted level of operating revenues is found in the testimony and exhibits of Company witness Nevil, Commission Staff witness Watts, and Nucor witness Goins.

CP&L witness Nevil's exhibits reflected adjusted operating revenues under current rates of $320,180,370. Commission Staff witness Watts testified that the Staff disagreed with the Company's allocation of a portion of the Cogeneration Revenue Annualization adjustment, which was a component of Mr. Nevil's recommended adjusted revenues. The Company directly assigned the three components of the cogeneration revenue adjustment (transmission, distribution, and customer) to the jurisdiction from which those revenues were provided. Staff witness Watts recommended that the transmission portion of the adjustment be allocated by the Demand Power Supply allocator which would allocate $20,000 more revenue to the South Carolina retail jurisdiction. (TR. Vol. 19 at 219). He also recommended an adjustment of $241,000 to reflect additional revenues from a standby service customer. Based on Staff's uncontested testimony, the Commission finds that Staff's recommendations should be adopted.

A second issue related to the appropriate level of adjusted operating revenue in this case was addressed by Nucor witness Goins. Dr. Goins proposed an additional $4.1 million revenue reduction to reflect his proposed demand allocation adjustment. Witness Goins concurred that if no demand allocation adjustment was approved disallowance of the Company's $2,222,734 adjustment would be appropriate. As discussed in Finding of Fact No. 5, the 1CP methodology with no adjustment to demand allocation was approved, and the Commission has disallowed the $2,222,734 revenue adjustment for reasons set forth supra.

Based on the above findings, the appropriate level of operating revenues for the Company under present rates after accounting and pro forma adjustments is $322,664,000.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 7

The evidence for this finding concerning the prudence of CP&L's expenditures on the Harris Plant is contained in the testimony and exhibits of Company witness Smith, Parsons, McDuffie, and Spann; Nucor witnesses Stiefel, McGaughy, and Komanoff; and Commission Staff witness Watts.

CP&L is seeking in this case to recover the remainder of its investment in the Harris Plant by having it placed in its rate base. This Commission in its 1987 Order No. 87-902 in Docket No.

87-7-E included approximately 50 percent of the Company's investment in the plant in rate base and deferred its decision on the remainder of the Company's investment until this proceeding. In this case, the Commission has heard challenges by witnesses sponsored by intervenor Nucor to the prudence of the Company's expenditures on the plant. In addition, Consumer Advocate witness Miller recommended that approximately $569 million of the Plant costs be classified as excess facilities and not be included in rate base. Based on the evidence submitted by the Company, the Commission finds that the Company has demonstrated the prudence of its expenditures on the Harris Plant and concludes that no disallowance based on prudence is justified.

CP&L offered evidence that the Harris Plant was announced by CP&L in 1971 as a four-unit, 3,600 MW nuclear plant located near Raleigh, North Carolina. The four units were originally scheduled for completion in 1977, 1978, 1979, and 1980. Harris Unit Nos. 3 and 4 were cancelled in 1981, and Unit No. 2 was cancelled in 1983. This Commission has dealt with the investment in those units previously, and that is not an issue here.

Harris Unit No. 1 entered commercial operation on May 2, 1987, at a cost of approximately $3.9 billion. Like all nuclear plants completed recently, the Harris Plant cost significantly more and took longer to build than was originally anticipated. The Company has the burden of proving the reasonableness of the expenditures on the plant; and as noted above, challenges have been made to the reasonableness of those expenditures.

In evaluating the reasonableness of CP&L's investment and the challenges thereto, the Commission is guided by certain basic principles. First, it has long recognized that utility expenditures are presumed to be prudent and subject to recovery unless challenged. Southwestern Bell Telephone Co. vs. Public Service Commission of Missouri, 262 U.S. 276, 289 (1923); and West Ohio Gas Co. vs. Ohio Public Utilities Commission, 294 U.S. 63, 72 (1935). Second, when the reasonableness of utility expenditures is challenged, the appropriate standard for determining the controversy is the traditional prudence standard. Under that standard, the Commission must determine whether utility management decisions were made in a reasonable manner and at an appropriate time based on what was reasonably known or reasonably should have been known at that time. See, e.g., Consolidated Edison Company of New York, 45 P.U.R. 4th (N.Y.P.S.C. 1982).

CP&L made its initial filing to meet its burden of proof on the Harris expenditures in its direct case on March 15, 1987. The Company presented testimony by its Chairman and Chief Executive, Mr. Sherwood Smith; its Vice President of Nuclear Operations, Mr. M. A. McDuffie; and Mr. Roland Parsons, the Project General Manager. Mr. Smith's testimony presented a detailed account of the corporate decision-making concerning the plant and the external and Company internal events that had impacted the plant. To summarize, the four-unit Harris Plant was started in 1971 at a time when CP&L was experiencing one of the highest growth rates of any utility in America. Harris was part of a massive construction effort undertaken by the Company to meet the projected growth in demand. Very high annual growth in peak demand continued through 1973 when the OPEC oil embargo occurred. The effects of this embargo were several fold, but the major impacts were on the Company's financial condition and on customer demand. CP&L began to experience serious financial difficulties in 1974 as a result of the embargo, and growth in demand declined drastically. To counter these financial crises, CP&L deferred a number of its plants, including the Harris Plant, and indefinitely postponed others.

CP&L's financial condition continued to be poor in 1975, and the Company again moved to defer the Harris units and other units. The in-service date of Harris Unit No. 1 was deferred from 1981 to 1984, and the other units were similarly deferred. These actions were taken to improve the Company's financial conditions and to put it in a better position to finance the heavy construction costs anticipated in the future. The plant deferrals were possible because of a combination of declining demand growth projections and a reduction in the Company's planning reserve margin to 12 percent. However, no one knew at that time what long-term effects (if any) the oil embargo would have on the consumption of energy.

CP&L began construction of the Harris Plant in January 1978, immediately after receipt of the Construction Permits from the Nuclear Regulatory Commission (NRC). Company witnesses testified that the cost of constructing the plant had increased for a number of reasons, including record-high inflation and interest rates and an increase in the regulation of nuclear plants by the NRC. At the same time, CP&L's projections of demand growth continued to decline and eventually stabilized at a level much lower than was projected at the time the plant was initiated. Due to decreased projection of demand growth, higher costs, and uncertainty over future NRC regulations, CP&L cancelled Harris Unit Nos. 3 and 4 in 1981 and Unit No. 2 in 1983. Certain facilities had to be completed to serve Unit 1 which are large enough to serve the four units originally contemplated. These large common facilities also increased the cost per kilowatt of Unit 1 when compared to many other nuclear plants.

The Harris Plant was not the only plant CP&L had under construction during the 1970s and 1980s. During this time, CP&L completed approximately two-thirds of the generating system it now has available to meet the demands of its customers. Since 1971, the Company has had to make a number of decisions and commitments in order to meet the expanding needs of its service area; and since the Harris Plant was started, the Company has completed four nuclear units, five coal units, and twenty-two combustion turbines. Decisions concerning the Harris Plant had to be made in the context of this large overall construction program.

CP&L witnesses McDuffie, who was the Company officer responsible for the Harris Plant, and Parsons, who was the Project General Manager, presented testimony concerning how the Company organized the Harris Project, chose the major contractors and the plant design, and implemented the project concept. Based on the experience gathered from a construction program that was continuous from 1947 to 1971 and that contained both fossil and nuclear plants, CP&L decided to assume the roles of Construction Manager and Project Manager on the Harris Project. It hired Ebasco Services, Inc., (Ebasco) as the architect/engineer (A/E) and Daniel Construction Company as the constructor. Westinghouse Electric Corporation was awarded the Nuclear Steam Supply System (NSSS) and turbine contracts. These CP&L witnesses described how the Company managed all aspects of the project, ranging from engineering management to quality assurance to project controls.

Witness Parsons provided testimony concerning the increase in the cost and schedule of the Harris Plant. Mr. Parsons presented the results of a study that demonstrated why the plant costs had increased between the definitive project estimate (done in 1978) of approximately $1.4 billion and the final plant cost of approximately $3.9 billion. The study analyzed the root causes, or cost drivers, that had been identified as affecting plant cost. Of these cost drivers, the most significant was regulation, which accounted for 66 percent of the increase in cost. Mr. Parsons also explained how and why the construction schedule for the Harris Plant had increased from 73 months (Construction Permit to Commercial Operation) to 111 months. Witness Parsons identified a number of federal regulatory changes that accounted for almost all of this 38-month schedule increase. (TR. Vol. 12 at 65-66)

CP&L witnesses Parsons and Smith presented testimony concerning how regulation of nuclear plants had changed throughout the duration of the Harris Project. The CP&L witnesses testified that when the Harris Plant was initiated, the Atomic Energy Commission (AEC) had only a limited number of written regulatory requirements. By the time the Harris Plant was completed, over 2,800 additional regulatory documents had been issued by the AEC and NRC. Of course, the significance and impact of these documents varied widely; but this growth is certainly an indication that regulation did increase dramatically. The Company witnesses gave a number of specific examples of how new or interpreted regulations had been applied to the Harris Plant and how these had affected the plant. (TR. Vol. 12 at 61-65; TR. Vol. 7 at 32-33)

The CP&L witnesses also testified that, in addition to an increase in the number of regulations, the NRC's manner of regulation changed following the Three Mile Island (TMI) accident in 1979 and as a result of quality assurance problems identified at other plants shortly after TMI. The witnesses testified that NRC vastly increased its scrutiny of nuclear plant design and construction and instituted a practice of requiring verbatim compliance with all regulatory requirements and standards. This was difficult to achieve, according to the Company's witnesses, because many codes and standards had been written to be applied through engineering judgments. In addition, the NRC also increased the requirements for the amount of detailed documentation needed to verify that everything had been done and inspected to assure that it was as it should be and that the construction matched the design drawings in every detail. (TR. Vol. 12 at 63-65)

Nucor presented the testimony of three witnesses who challenged the prudence of CP&L's expenditures on the Harris Plant. John T. Stiefel of Stiefel Associates, Inc., a company participating in nuclear consulting work and real estate, and James P. McGaughy, Jr., GDS Associates, Inc., an engineering consulting firm, testified that CP&L failed to exercise prudent management judgment in the selection of the original design of the plant general arrangement and in its decision to manage the Harris Plant project itself. These witnesses also testified that CP&L had not prudently managed the impact of regulation on the plant and had not adequately explained the reasons for cost increases. These witnesses developed a range of imprudent costs of $569 million to $1.562 billion and recommended a disallowance of $880 million on a system basis.

Nucor also presented the testimony of Charles Komanoff of Komanoff Energy Associates, an energy and economic consulting firm. Mr. Komanoff presented a comparative analysis, based on regression analyses, of the cost of the Harris Plant to other nuclear plants. He also conducted an economic evaluation of the total life-cycle cost of Harris as compared with a hypothetical coal plant. Based on these comparisons, Mr. Komanoff found an "implied disallowance range" of $956 million to $1.236 billion.

The prudence issues raised by the Nucor witnesses are for the most part matters of judgment and opinion, and the Commission can only determine these issues by weighing the opinions of the various witnesses. The weight to be given to a witness' testimony is a function of that witness' qualifications, experience, knowledge of the subject matter, and credibility. The CP&L witnesses all had extensive firsthand knowledge of the Harris Plant; Mr. Smith and Mr. McDuffie were involved with the plant from its inception, and Mr. Parsons had over 10 years of experience at the plant. Both Mr. McDuffie and Mr. Parsons also have had extensive experience in nuclear plant construction going back over 20 years. The CP&L witnesses were knowledgeable and credible.

Nucor witness Stiefel had significant experience in the early years of the nuclear industry but has not had any direct management responsibility for a nuclear plant since 1972. Mr. Stiefel's testimony indicated that he knew very little about what actually happened at the Harris Plant.

Nucor Witness McGaughy had more direct recent experience in the nuclear industry than Mr. Stiefel. He spent a number of years with Mississippi Power & Light Company working on the Grand Gulf Plant, becoming an Assistant Vice President in 1980 and a Vice President in 1983. Mr. McGaughy's testimony was essentially based on comparing his experience at Grand Gulf with CP&L's actions on the Harris Plant. However, as with Mr. Stiefel, Mr. McGaughy knew very little about the events that occured at the Harris Plant.

Nucor witness Komanoff did not address the prudence or imprudence of any specific acts of CP&L. Mr. Komanoff could not do so because he apparently had had no training or experience in nuclear plant design, construction, licensing, or related matters. Rather, his testimony was based solely on the use of comparative statistics and regression analyses. The Commission does not believe that such testimony should be the basis for any disallowance of plant costs. Mr. Komanoff's methodology disregards the applicable legal standard of prudence and does not pretend to evaluate the reasonableness of the Company's actions in light of the circumstances at the time the actions were taken. The Commission finds that CP&L's witnesses were much more knowledgable about the events that occured at the Harris Plant and had much more experience in the nuclear industry than the Nucor witnesses. The Commission, therefore, gives more weight to the testimony of the CP&L witnesses.

The Commission will now consider the specific prudence issues raised by the parties:

(1) The issue of whether it was prudent for CP&L to have managed the Harris Project.

From the onset of the Harris Project, CP&L undertook the roles of construction and project manager. CP&L hired Ebasco for engineering services and Daniel for construction services. From these various organizations, CP&L created an integrated project organization with CP&L personnel in the controlling positions. CP&L, in its role as construction and project manager, had responsibility for running the overall project and performed project control functions such as planning, scheduling, contracting, and others. (TR. Vol. 10 at 6-7, 9-10)

CP&L witness McDuffie testified that CP&L's decision to adopt this approach was a natural evolution of the Company's experience from its prior construction program. CP&L had been engaged in a continuous construction program since 1947 and by the early 1970s had experience with the Parr Shoals, Robinson, and Brunswick Nuclear Plants. CP&L had a limited role on the Robinson Project and had increased its management role at Brunswick; by the time the Harris Project was commenced, CP&L believed that there was a need for the Company to take an even more direct day-to-day role in future construction projects. (TR. Vol. 10 at 7-9; TR. Vol. 20 at 175-77)

CP&L witness McDuffie testified that at the time CP&L decided to manage the Harris Plant, it knew it had an extensive construction program ahead of it; and the Company believed that greater Company involvement and control were necessary if CP&L was to complete a nuclear construction program and then operate those plants successfully. A key element of CP&L's decision was that it had to operate these plants after they were built. Mr. McDuffie stated that common sense indicates that the more involvement and input a company has during design and construction of a plant, the better its operating knowledge and position will be. In addition, he noted that the regulation of nuclear power was starting to increase at that time, although not nearly as dramatically as in the late 1970s and the 1980s. CP&L was especially interested in managing the new quality assurance requirements, which it believed to be extremely important. Mr. McDuffie testified that CP&L believed then--and believes even more strongly now--that no one can represent the Company's needs and interests better than the Company itself. In summary, Mr. McDuffie testified that CP&L

believed its management of the project would lead to better results in terms of cost and schedule and quality. (TR. Vol. 20 at 175-77; Ex. No. 153)

Nucor witnesses Stiefel and McGaughy argued that this decision by CP&L was imprudent. They testified that CP&L was not qualified in 1971 to undertake such a management role because the Company was relatively small and had not managed a power plant construction project previously. These witnesses testified that CP&L had not gained any significant experience on the Robinson and Brunswick Plants and had taken on a role at Harris that it was not capable of fulfilling.

The Nucor witnesses also testified that CP&L was imprudent in not establishing a single corporate officer with responsibility only for the Harris Plant until 1983. Finally, they testified that CP&L had not devoted senior management attention to the project until 1984. (TR. Vol. 15 at 65-73)

In response to these allegations, CP&L witness McDuffie testified that in 1971 CP&L was as well qualified as almost anyone to manage the construction of a nuclear project. He recounted the experience of the CP&L managers who were hired to help run the Harris Project. Mr. McDuffie noted that CP&L had a group of managers and other personnel whose individual experience on the construction of power plants could be measured in decades and who had worked on nuclear projects for entities like Stone & Webster, Ebasco, Bechtel, the AEC, and others. Mr. McDuffie testified from firsthand knowledge that Company personnel had gained considerable experience at the Parr Shoals, Robinson, and Brunswick Nuclear Plants and from the Company's extensive construction program spanning more than 20 years. He noted that CP&L continued to complement its staff by hiring experienced personnel throughout the life of the job. (TR. Vol. 20 at 176-79)

Mr. McDuffie also testified that a number of auditors had reviewed CP&L's management role on the Harris Plant over the years. He explained that every auditor other than Messrs. Stiefel and McGaughy who addressed the subject reached a conclusion opposite that of the Nucor witnesses. For example, Booz Allen & Hamilton in its 1977 management audit for the North Carolina Utilities Commission concluded that "the construction management function appears to be well structured and cost effective. No major weaknesses have been identified and any improvement is of a fine-tuning nature." Booz Allen stated that:

> The direction that Carolina Power & Light has selected, particularly as it is exhibited with the Shearon Harris Project, is viewed as a sound, sensible, and timely maturing of increasing control over engineering and construction.

In its 1982 management audit for the North Carolina Utilities Commission, Cresap, McCormick and Paget found that the "Company's active project management role [at Harris] has been beneficial." (TR. Vol. 20 at 182)

In 1981, Theodore Barry & Associates (TB&A) was retained by CP&L to perform a comprehensive review of its engineering and construction management activities. Theodore Barry & Associates concluded that the "CP&L/Daniel organization established at the site is functioning well." Theodore Barry also concluded that:

> In TB&A's experience, management within CP&L's E&C [Engineering and Construction] Group has a high level of competence. In general, management performance appears to be highly satisfactory and above average within the industry. (TR. Vol. 20 at 182-83)

The NRC stated the following in 1982:

> The overall performance of CP&L relative to the Harris facility, reflects favorably upon your [CP&L] management and on-site personnel. It is evident that management attention and involvement are present, and that resources are adequate and effective such that satisfactory regulatory performance is being achieved. (TR. Vol. 20 at 183)

Similarly, Canatom (the auditor for the North Carolina Utilities Commission Public Staff) explained that:

> CP&L's project management concepts as applied to SHNPP grew out of its extensive experience over the years with construction and operation of many generating plants of different types, and from industry practices in the late 1960s.
>
> CP&L had had a continuous construction program since the late 1940s, and had completed fourteen large generating facilities by the late 1960s.
>
> CP&L's initial involvement with nuclear generating facilities started in the mid-1950s with its participation in the experimental Parr Shoals plant (17 MWe) and continued through its first commercial nuclear power plant, the H. B. Robinson Unit 2 (665 MWe), placed in service in 1971. This was followed by Brunswick Units 1 and 2 (2 x 790 MWe), placed in service in 1977 and 1975, respectively. Thus, at the initiation of SHNPP in 1971, CP&L had gained experience and expertise in the implementation and operation of nuclear generating plants in addition to its extensive involvement in the construction and operation of conventional generating facilities under various project management concepts. (TR. Vol. 20 at 183-84)

Mr. McDuffie also noted that the NRC has been concerned about the over reliance by some other utilities on contractors for quality assurance functions. Following the TMI accident in 1979, several nuclear plants were found by the NRC to have quality assurance problems. In testifying before Congress in November 1981 about the plants, William Dirks, the NRC's Executive Director for Operations, stated:

> In looking at the Marble Hill, Midland, Zimmer, South Texas, and Diablo Canyon problems, questions have been raised as to why the licensee's quality assurance program and the NRC inspection program had not identified the problem sooner. Clearly, in each case there was an over reliance by the utility on its contractors for maintaining a thorough quality assurance program.

Mr. McDuffie testified that this was exactly the type of problem CP&L was trying to avoid--and did avoid--by managing the project itself. (TR. Vol. 20 at 184-85)

CP&L witness McDuffie testified that the increased involvement by utilities in the construction of their nuclear plants has generally been perceived throughout the industry as a very positive trend. CP&L was one of the early adherents to this philosophy, and this decision has served the Company well. Mr. McDuffie also explained the reasons that CP&L made the Harris Plant the sole responsibility of a single corporate officer in 1983. He noted that CP&L had been audited repeatedly in the past and that no one had ever suggested that the organizational structure was inappropriate or should be changed. (TR. Vol. 20 at 185-87) Mr. McDuffie also described in detail the extensive mechanisms of reports, meetings, and interfaces through which CP&L senior management monitored and managed the Harris Plant. (TR. Vol. 20 at 187-197)

Based on the evidence presented, the Commission finds that

CP&L's decision to manage the Harris Project was prudent.

The Commission does not accept the Nucor witnesses' claim that CP&L was not qualified to take on this responsibility. The Company has had an extensive and continuous construction program dating from 1947. Prior to undertaking its management role on the Harris Plant, CP&L had complemented its existing staff with experienced personnel like Mr. McDuffie, who at that time had some two decades of construction experience that included work on several nuclear plants in a senior construction management position with Ebasco.

The evidence in this case demonstrates that many auditors, including two auditors hired by the North Carolina Utilities Commission, have reviewed CP&L's management role in the Harris Plant. With the exception of Messrs. McGaughy and Stiefel, these auditors have uniformly agreed that CP&L's management role was beneficial to the Company and had been a very positive step. These audits were for the most part nonadversarial and were undertaken to provide guidance to CP&L on how it could improve its performance. The Commission views these audits as more credible than the testimony of the Nucor witnesses. The Commission finds that CP&L provided a very high level of management attention to the Harris Plant.

(2) The issue of whether CP&L's choice of the general arrangement of the plant was prudent.

CP&L testified that the Harris Plant as originally conceived was designed to take advantage of the economic and operational benefits of sharing common facilities among four units. The original design was four 900-megawatt pressurized water reactors in containment buildings set 90 degrees apart in a square arrangement. These four units would share a common Fuel Handling Building, which would bisect the squared containment arrangement, and a common Waste Processing Building. Other plant structures and facilities were designed to serve either two or four units. Because the four units were grouped together in a square, this general arrangement came to be known as the cluster arrangement. (TR. Vol. 10 at 15-17)

With the cancellation of Unit Nos. 2, 3, and 4, some of the common facilities originally designed to serve four units now exist to serve only Harris Unit No. 1. This has caused the cost of the Harris Plant to be more than it would have been had it initially been designed as a single unit.

CP&L witness McDuffie testified about CP&L's selection of this particular design. He noted that when the Harris Project was initiated, CP&L was faced with a pressing need to add a substantial amount of capacity to its system in a very short period. The most economical way to do this was to build a number of units at one site to take advantage of the economics of design, procurement, construction, and operations attendant to construction of multiple units at a single site. (TR. Vol. 10 at 12)

CP&L historically had constructed multiple units at a single site to centralize operations, to reduce environmental and land acquisition concerns, and to achieve economies of scale and utilize common facilities. Since the 1920s, its generating units have been planned at multi-unit sites. In addition, the siting of multiple nuclear plants on a single site was common in the nuclear industry (both CP&L's Robinson and Brunswick nuclear units are on multiple unit sites); and the NRC was encouraging this practice. (TR. Vol. 10 at 12-13)

Mr. McDuffie also stated that another major factor in selecting the plant general arrangement was the use of common facilities. CP&L's policy was and is to build plants that minimize construction quantities and that efficiently utilize operating and maintenance personnel. In enacting this policy, CP&L emphasized in its generating plant designs the use, where possible, of shared or common facilities. The use of common facilities reduces the total life cycle costs of plants. Both CP&L's two-unit Brunswick Plant and its Robinson Plant utilize some common facilities. Common facilities were also incorporated into the designs of many of CP&L's coal plants. This sharing of common facilities has resulted in significant savings to the Company's customers over the years. In addition, many other utilities were using common facilities in their multiple unit nuclear stations. (TR. Vol. 10 at 13-14)

The consideration of plant general arrangements started in early 1971. Witness McDuffie states that at that time, CP&L and Ebasco (A/E) discussed and reviewed a number of plant general arrangements for siting four nuclear units at the Harris site. They jointly developed a list of design criteria to be used in evaluating the possible general arrangements for the plant that reflected CP&L's desire to take advantage of the construction cost and schedule efficiencies possible with maximum use of common facilities. Mr. McDuffie stated that this was important because, at that time, there was an urgent need for new generating capacity. (TR. Vol. 10 at 14)

Ebasco prepared a detailed comparison of a number of possible general arrangements. Mr. McDuffie explained that based on CP&L's evaluation of these alternative designs against the chosen criteria, and taking into account projected costs and other factors, including the views of the A/E, CP&L selected a cluster general arrangement for the Harris Project. The cluster arrangement maximized the use of common facilities. Mr. McDuffie explained that the cluster arrangement satisfied the objectives of timeliness, cost, and operating efficiency better than any of the other potential general arrangements. The Company believed that the cluster arrangement could be built more quickly and more economically than the other general arrangements, thus helping to ensure an adequate supply of power when needed. As projected by the existing load forecast, one generating unit of about 900 MW each was needed each year from 1977-1980. The cluster arrangement was compact and the original design utilized a number of common features. Thus, quantities of concrete, rebar, structural steel, and other commodities would be less than that required to build a plant utilizing any of the alternative arrangements; and craft work-hours would likewise be comparatively less. Craft workers could move easily from one work place to another without losing valuable work time, and materials staging could be more centralized and efficient than with four separate units. (TR. Vol. 10 at 17)

The Company believed that the cluster arrangement would produce a safer, more secure, more efficient, and more maintainable operating plant than the other arrangements. The cluster arrangements provided a four-unit common fuel handling facility. With four units, fuel handling would be an almost continuous process, which would allow for the use of a dedicated, highly trained force of fuel handling specialists. The single four-unit fuel handling facility also would permit fuel sharing between the reactors so that the first core load in Unit Nos. 1 and 3 could be shared with Unit Nos. 2 and 4, respectively. This fuel sharing concept projected substantial economic benefits. The cluster design also appeared to have significant maintenance benefits that did not exist with the other units. (TR. Vol. 10 at 18)

CP&L also believed that important licensing benefits could be achieved by adopting the cluster arrangement. Mr. McDuffie testified that because the cluster arrangement was essentially one large building complex, CP&L sought to receive all four Construction Permits simultaneously from the AEC for the four units after a single review of the entire plant. CP&L could thus undergo one construction license proceeding instead of two or four, thereby expediting the licensing process and reducing potential construction delays and licensing risks. (TR. Vol. 10 at 19)

Mr. McDuffie explained that the original plant general arrangement was described to the North Carolina Utilities Commission in 1971 in evidence presented by the Company and

Commission Staff. After reviewing the evidence, the NCUC granted CP&L a Certificate of Public Convenience and Necessity and had the following to say about the proposed plant:

> [W]e have concluded...that the Company should proceed to design and construct these units as planned in the application.
>
> * * *
>
> The Commission further concludes that it will retain overall jurisdiction over the design of the plant, as well as its operation, and will require the backfitting of technological advancements as they become available, that provide reasonable additional protection necessary for the public health and safety or protection of the environment.

The plant design was also reviewed by the NRC, which granted construction permits for the plant in 1978. (TR. Vol. 10 at 19-20; Vol. 20 at 216-218)

Nucor witnesses Stiefel and McGaughy testified that in their opinion the selection of the cluster design was imprudent. They testified that this design was unique and conflicted with an emerging "consensus" in the industry that standardized, slide-along (single-unit) plants were the appropriate choice of plant design. They also testified that Ebasco had recommended slide-along units, but CP&L had imprudently chosen the cluster design instead.

The Nucor witnesses also testified that CP&L had imprudently rejected Ebasco's recommendation of stand-alone single units. Ebasco had evaluated the cluster design as being the least expensive option but had identified five intangible factors (mostly relating to possible construction inefficiencies) that it believed could more than offset this economic advantage. The Nucor witnesses testified that the cluster should have been rejected as more difficult to license, to maintain, and to build, and as potentially more expensive than the slide-along units. (TR. Vol. 15 at 80-89)

CP&L witness McDuffie offered rebuttal testimony on these allegations. He explained how he and other Company personnel had evaluated the potential risks identified by Ebasco. He noted that these intangibles concerning construction had been identified by Ebasco engineering personnel who were not well versed in construction practices or practicalities. He testified that his analysis of the intangibles identified by Ebasco convinced him that these risks were either nonexistent or not significant. Mr. McDuffie noted that at that time he had recently left Ebasco to join CP&L. When he left Ebasco, he had been one of its most senior construction people and had he stayed with Ebasco, he would have been making the same judgments for it that he was making for CP&L. (TR. Vol. 20 at 177, 207-09)

Mr. McDuffie explained in detail how he had evaluated each of the intangibles and why he concluded that they were not significant. He also testified that none of these intangible risks ever materialized. He stated that Ebasco's evaluation of the general arrangements had not considered a number of intangibles that would penalize slide-along units, including increased indirect costs, increased supervisory and security personnel, additional tools, equipment, railroad and access roads, and many other things. Witness McDuffie testified that, if anything, Ebasco's evaluation had significantly understated the economic benefits of the cluster design. (TR. Vol. 20 at 209-16) CP&L witness McDuffie also rebutted the Nucor witnesses' statements that the cluster design had higher cash flow requirements, was harder to license, and was less maintainable than slide-along units. (TR. Vol. 20 at 221-26)

CP&L witness McDuffie effectively explained CP&L's rationale for not accepting Ebasco's initial recommendation. Mr. McDuffie testified with firsthand experience on how and why CP&L chose the cluster. He listed a number of benefits of the cluster design which no one has contested. (TR. Vol. 20 at 197-202) He explained why the cluster was the option that best met the specific design criteria and best fit CP&L construction and operating philosophies. In summary, witness McDuffie has given an explanation of the Company's actions that is fully satisfactory to this Commission.

The Commission notes that Ebasco, after discussing with CP&L how the Company would deal with the intangibles if they did arise, fully supported and endorsed the cluster concept. Mr. McDuffie testified to this, and Canatom (the North Carolina Utilities Commission Public Staff's auditor on the Harris Plant) reached the same conclusion after interviewing Ebasco's project manager. (TR. Vol. 20 at 214-15) In addition, the evidence shows that none of the intangible risks cited by Ebasco ever occurred and the Nucor witnesses do not even allege that these risks ever came to fruition. While this is admittedly hindsight, it demonstrates that Mr. McDuffie's opinions in 1971 about the significance of these risks were sound. Further, it demonstrates that no costs were increased as a result of CP&L's failure to concur in Ebasco's recommendation. The event which caused Unit 1 to cost more was cancellation of 3 of the 4 units in the cluster -- an event Ebasco never identified as a potential problem.

Therefore, the Commission finds that CP&L was prudent in its selection of the Harris Plant arrangement.

(3) The issue of whether CP&L adequately explained the reasons for the cost increases of the plant.

The Nucor witnesses testified that, in their opinion, CP&L had not explained adequately the reasons for the increases in the cost of the Harris Plant. First, the Nucor witnesses stated that CP&L had not explained the increase in the cost of the plant from 1971-1979.

CP&L witness McDuffie testified in rebuttal about the factors that had affected the cost of the plant during that time. In summary, Mr. McDuffie explained that regulatory changes requiring the addition of cooling towers, a redesign of the waste processing facilities, a redesign of the plant to meet new seismic criteria, a redesign of the superstructure of the fuel handling building to meet new tornado and missile requirements, and other regulatory changes all added to the cost. He also stated, however, that the most significant cause of the cost increase had been the deferrals of the plant between 1971 and 1975 for regulatory, load growth, and financial reasons. (TR. Vol. 20 at 232-34) The Commission concludes that CP&L's explanation of these cost increases is sufficient to rebut the challenge by the Nucor witnesses.

The Nucor witnesses' second challenge concerns CP&L's handling of regulation and regulatory change. The Nucor witnesses state that although 66 percent of the post-1979 increase in the Harris Plant's costs may have been incurred because of regulation, a prudently managed project would have had only a 33 percent impact from regulation. From this, the witnesses conclude that the other 33 percent regulatory impact incurred by CP&L was imprudent.

The apparent basis for this opinion was a study that the Nucor witnesses had been involved with concerning the regulatory impact on Grand Gulf. These witnesses testified that the regulatory impact on Grand Gulf had been approximately 33 percent. (TR. Vol. 15 at 105-06) Witness Stiefel testified that CP&L had been imprudent in its response to regulation because it had done too much to satisfy the NRC. He testified that "if you've not been fined by the N.R.C., you have no yardstick to judge that you're doing a relatively prudent job. Because if you get no fines, you're bending over too far backwards." (TR. Vol. 16 at 35)

Messrs. Stiefel and McGaughy testified that CP&L's response to the TMI-related regulatory requirements was imprudent. They based this conclusion in large part on their experience at Grand Gulf where, they asserted, TMI had not had as significant an impact as it did at the Harris Plant. Thus, they concluded CP&L must have been imprudent in handling these regulatory requirements. (TR. Vol. 15 at 91-96)

The Nucor witnesses also challenged CP&L's assertion that almost all of the 38-month schedule delay was caused by new or reinterpreted regulatory requirements. They testified that the schedule impact from regulation was only seven months. (TR. Vol. 15 at 101)

In rebuttal, CP&L witness Parsons testified that a comprehensive analysis performed for the Company by the consulting firm Cresap demonstrated that the regulatory impact on the cost of the Harris Plant was 66 percent. He noted that this was not out of line with other recently completed plants, which had reported regulatory impacts ranging from 57 to 72 percent. (TR. Vol. 20 at 245, 247) Mr. Parsons also took issue with the Nucor witnesses' assertion that the regulatory impact on Grand Gulf was only 33 percent. He noted that this "study" was done in 1982, three years before the Grand Gulf Plant was completed. He also explained that CP&L had requested a copy of this Grand Gulf analysis in discovery. Mr. Stiefel had responded that "the details of the analysis was not available to Mr. Stiefel, and to the best of his knowledge a specific document on this analysis was not prepared."

CP&L witness Parsons also testified that a full scale audit of the Grand Gulf Plant was completed in 1985 by auditors retained by the Mississippi Public Service Commission. He stated that contrary to the claims of Messrs. Stiefel and McGaughy, who were unable to present any documentation of the "33 percent" impact study, the Mississippi Commission's auditors found that regulatory change had accounted for 58 percent of the cost increase at Grand Gulf. (TR. Vol. 20 at 250-51) He also noted that, despite Mr. McGaughy's claim that TMI had a "minor" impact on Grand Gulf, the

Mississippi Commission's auditor found TMI modifications to have accounted for 14 percent of the cost increase at Grand Gulf. The impact of regulation at the Grand Gulf Plant was determined to be approximately $1.6 billion -- almost identical to the impact at the Harris Plant. (TR. Vol. 20 at 250-51)

Mr. Parsons also explained that it was not at all clear that the TMI requirements ultimately had a lesser impact at Grand Gulf than at Harris. He explained that Grand Gulf was permitted to defer much of the TMI-related requirements until after fuel load and commercial operation. Mr. Parsons testified that the NRC would not permit this at Harris. Because of the problems the NRC had experienced with Grand Gulf and other plants that deferred work until after fuel load, it changed its policy and no longer would permit the deferral of significant work items until after fuel load or commercial operation. Mr. Parsons explained that these additional requirements deferred at Grand Gulf would have to be made after commercial operation, when such modifications are more difficult and costly to make. (TR. Vol. 20 at 245-46, 251-57)

Witness Parsons also explained how the Harris Plant schedule had been affected by regulation. He testified that an analysis of the schedule records for the plant was analyzed and the causes of the delays were identified from these as-built records. This analysis showed that several specific regulatory changes had caused almost the entire delay in the schedule. Mr. Parsons also rebutted other statements by the Nucor witnesses. (TR. Vol. 12 at 61-65; Vol. 20 at 271-72)

The Nucor witnesses relied on a study they helped perform in 1982 showing a regulatory impact on Grand Gulf of 33 percent; they were unable to provide any documentation of the study, however, and CP&L has presented evidence showing that the actual known regulatory impact on Grand Gulf was at least 58 percent at the end of the project in 1985. The main thrust of the Nucor witnesses' allegations was that CP&L had mishandled regulation by doing too much to please the NRC; on cross-examination, however, Mr. Stiefel admitted that he did not study regulatory requirements as they related to the Harris Project (TR. Vol. 16 at 29) The Nucor witnesses challenged CP&L's explanation of the reasons the plant schedule was delayed; the record shows that these witnesses never looked at the plant's schedule records. (TR. Vol. 20 at 271)

The evidence in this case shows that CP&L and the Nucor witnesses had very different philosophies regarding compliance with the NRC's regulation of the safety of nuclear power. Given these alternatives, we prefer CP&L's approach of compliance with the NRC's regulations. This Commission is concerned by the suggestion that prudent management can be demonstrated by being fined by the NRC. (TR. Vol. 16 at 34-35) This philosophy is antithetical to the relationship this Commission believes nuclear utilities should have with that agency.

Nucor also presented testimony by Mr. Charles Komanoff comparing the cost of the Harris Plant to a group of other nuclear plants and to a hypothetical coal plant. Mr. Komanoff compared Harris to a group of 27 plants, which included both single and multiple unit plants and also included plants that were completed more than five years before the Harris Plant. Mr. Komanoff testified that he used a three-step analysis to evaluate these plants. First, he compiled estimates of all of the projects' total costs. Second, he removed AFUDC from these estimated costs and then deflated the remaining costs to constant dollars. Third, Mr. Komanoff adjusted the deflated costs for circumstances that contributed to cost differences among the various projects but which could be viewed as beyond the control of management.

The third step -- adjusting for factors beyond management's control -- was accomplished through multiple regression analyses. Mr. Komanoff used four variables to accomplish this, including the effect of twin reactor projects on plant cost, labor rates, percent complete at the time of the TMI accident, and regulatory work stoppages. From these variables Mr. Komanoff concluded that Harris exceeded its "appropriate cost" by 47 percent. Based on the introduction of a fifth variable, the impact of a cooling tower on plant cost, Mr. Komanoff concluded that Harris exceeded its "appropriate cost" by 33 percent.

Mr. Komanoff testified that the results of his study established a "strong presumption" that Harris exceeded its "appropriate cost" by a range of 33 to 47 percent. From this, he concluded that his study established a "strong presumption" that 25 to 32 percent, or $956 to $1,236 million, of the cost of the plant was imprudent.

CP&L presented the testimony of Dr. Robert Spann to rebut Mr.

Komanoff. Dr. Spann testified that "[t]here is no sound statistical basis for Mr. Komanoff's conclusion that a substantial portion of the Harris costs should be disallowed from rate base." (TR. Vol. 20 at 126-27) Dr. Spann demonstrated that the only appropriate statistical conclusion one could draw from Mr. Komanoff's analysis was that there is a 95 percent probability that the "appropriate cost" of Harris is between $1,548 per kW and $3,545 per kW in constant 1987 dollars (without AFUDC). The actual cost of Harris in the same terms of $3,210 per kW falls within this range. According to Dr. Spann, the difference between the actual cost of Harris and Mr. Komanoff's projected cost is within the margin of error in Mr. Komanoff's model. Dr. Spann testified that Mr. Komanoff had used this 95 percent confidence interval in prior testimony but made no mention of this basic, but very important, statistical concept in his testimony here. (TR. Vol. 20 at 132-38)

Dr. Spann also pointed out errors in Mr. Komanoff's model methodology. He showed that Mr. Komanoff's regression model was inconsistent with the methodology recommended by generally accepted texts.

Dr. Spann reviewed the testimony of Mr. Komanoff in other proceedings and noted certain discrepancies that appear in the various proceedings. Dr. Spann noted that using a model different from the one used here, Mr. Komanoff testified before the Texas Public Utilities Commission that the cost of the River Bend Plant exceeded its "appropriate cost" by over $1,000 per kW. When the River Bend data are used in the Komanoff model presented in this case, the River Bend costs are almost $500 per kW below its forecasted "appropriate cost." Similarly, Mr. Komanoff testified in Connecticut that the Millstone 3 Plant costs were from 29 percent in one example to 10 percent in another example above "appropriate cost" and recommended a disallowance of $765 million. When the Millstone 3 data are plugged into Mr. Komanoff's South Carolina model, the actual cost of the Millstone 3 Plant is only about 3 percent above its appropriate cost. Dr. Spann noted that one test of the validity of a model or procedure is its stability and reliability. The fact that a plant in one Komanoff model could swing from being one of the worst to costing less than average in another Komanoff model indicated to Dr. Spann that the Komanoff models are very unstable and unreliable. (TR. Vol. 20 at 140-41)

Dr. Spann testified that Mr. Komanoff uses different variables in different cases. Dr. Spann demonstrated that by picking and choosing among variables contained in Mr. Komanoff's prior testimony, one may produce a regression analysis that showed an appropriate cost of $3,137 per kW in constant dollars for the Harris Plant, which was very close to the actual constant dollar cost of $3,210 per kW. Dr. Spann testified that the equation he had developed was equally or more statistically valid than the one used here by Mr. Komanoff. Dr. Spann further explained that by using Mr. Komanoff's procedure and selecting five of the variables in the Komanoff data base, he could "prove" that the "appropriate cost" of Harris was $3,211 per kW -- which hit the actual cost of $3,210 per kW as calculated by Mr. Komanoff. Dr. Spann also observed that one can obtain just about any result desired by choosing among Mr. Komanoff's variables. He stated, however, that, "as an econometrician, I would completely disregard both equations and not use either.... This type of procedure is simply not statistically valid and would be disregarded by professional statisticians or econometricians." (TR. Vol. 20 at 141-43)

CP&L witness Parsons also testified in rebuttal to Mr. Komanoff. Mr. Parsons testified that Mr. Komanoff's mathematical analysis did not recognize or reflect the reality of the many issues that affect the engineering and construction of a nuclear plant. Mr. Parsons stated that a theory that asserts that five variables can explain the differences between 28 plants built over 16 years was a gross oversimplification of the most turbulent period in the history of the electric utility industry. (TR. Vol. 20 at 276) Witness Parsons also contested Mr. Komanoff's selection of plants completed many years prior to the Harris Plant as being comparable to Harris. He presented a graph of key regulatory events and unadjusted nuclear construction costs from 1970 through 1988 for all commercial nuclear plants. This graph showed that the dramatic increase in the cost of nuclear plants starting in about 1982 corresponded directly to the post-TMI regulatory environment, with its increased inspection and documentation requirements, increased scope of work, and extended construction durations. Mr. Parsons noted that plants completed years earlier than the Harris Plant did not face this harsher regulatory environment with its attendant higher costs to the same extent as plants finished more recently. (TR. Vol. 20 at 263-66, 277-281)

The Commission has reviewed carefully the evidence in the record regarding this issue, utilizing as we must our independent judgment and expertise. In doing so, we reject Mr. Komanoff's testimony and methodology for several reasons. The Commission finds the use of comparative statistics and regression analysis alone not to be a suitable basis on which to determine the prudence or imprudence of utility management. Mr. Komanoff's analysis is a highly subjective and selective procedure based on data that was not available at the time important decisions were made during the construction of the Harris Plant. Mr. Komanoff's analysis is based entirely on hindsight and lacks any causal relationship to the legal standard for determining prudence.

Even if we found such analysis in general to be of some probative value, we could not accord any weight to Mr. Komanoff's. Dr. Spann, a credible witness possessing a Ph.D in economics and statistics, pointed out that the validity of such statistical analysis depends on the choice of the variables used and on the statistical significance of those variables. The evidence presented by Dr. Spann clearly demonstrated very serious flaws in the methodology of Mr. Komanoff.

In addition, the Commission agrees with CP&L witness Parsons that Mr. Komanoff's theory that just five variables explain the cost differences between 28 nuclear plants constructed over a period of 16 years is simply unrealistic. Having not participated in the design, construction, licensing, operation, or any other aspect of the nuclear industry, Mr. Komanoff cannot be expected to have a firm grasp of the many factors that can affect plant costs. (TR. Vol. 18 at 141) In addition, Mr. Komanoff made no attempt to study the design features of the Harris Plant to determine what impact unique design features could have had on the cost of the plant. We find persuasive Mr. Parsons' explanation of the impact of the NRC's post-TMI changed regulatory practices and requirements on the construction costs of recently completed nuclear plants. Mr. Parsons' testimony explained the sharp increase in the cost of nuclear plants starting in about 1982 and the data presented by him (unadjusted, unnormalized, and with no multiple regression analyses involved) demonstrated the accuracy of his conclusions. Mr. Parsons' testimony also highlighted another flaw in Mr. Komanoff's methodology; in this group of 27 plants he found to be comparable to Harris, Mr. Komanoff included plants completed as much as five years earlier than Harris. Mr. Komanoff attempted to justify this by stating that these 28 plants were "built under broadly similar economic, political, regulatory, and industry conditions." (TR. Vol. 18 at 26) The testimony of Mr. Parsons and others--who have been in the industry for the last several decades--demonstrates that such a statement is simply incorrect.

In summary, we find that Mr. Komanoff's comparative costs studies are unreliable and of no probative value on the issue of prudence. This Commission, in the recent past, has been presented with comparative economic testimony similar in concept to Mr. Komanoff's. In our November 5, 1986 Order No. 86-1116 in Docket

No. 86-188-E, this Commission heard testimony, based on comparative economics, that Duke Power Company's Catawba 2 should not be included fully in rate base because hypothetical replacement capacity of coal and combustion turbines would require smaller revenue requirements than the completed nuclear plant. We rejected that assertion as follows:

> This Commission agrees with the evidence and testimony of Dr. Spann that the methodology employed by Dr. Bernow is flawed in concept. Additionally, we find that Dr. Bernow's application of that methodology is biased against Catawba 2. We find that the assumptions used by Dr. Bernow in his analysis either are incorrect or are unreasonably biased against the nuclear option; that consequently they are unreliable and subject to change; and that if changes occur in those assumptions, the outcome of Dr. Bernow's analyses will be significantly impacted. This Commission specifically rejects Dr. Bernow's methodology, the application of that methodology, and the recommendations presented by Dr. Bernow on the grounds stated above. Order No. 86-1116, p. 30.

This Commission has the identical reaction to Mr. Komanoff's testimony and methodology; and we specifically reject Mr. Komanoff's methodology, the application of that methodology, and the recommendations presented by Mr. Komanoff. We also reject Mr. Komanoff's implication that CP&L could have cancelled Harris and constructed coal plants instead as inconsistent with events, including actions of this Commission and the North Carolina Utilities Commission, at the time such decisions would have to have been made.

Dr. Spann noted that if one were to rely on simple comparisons between Harris and other units, the appropriate cost comparison would be to compare Harris to other single-unit plants. Dr. Spann's prefiled Exhibit RMS-9 sets forth such comparison.

About one-half of the units cost more than Harris, and about one-half of the units cost less than Harris. This more appropriate comparison shows that the cost of Harris is comparable to other nuclear units and not "excessive" as claimed by Mr. Komanoff. (TR. Vol. 20 at 153)

Similarly, CP&L witness Smith offered a comparison of Harris cost to other contemporaneous nuclear plants. While accurate cost comparisons of nuclear plants are difficult to make and may be of limited value, the Harris Plant cost compares favorably to other contemporaneous single and first-of-two unit plants. (TR. Vol. 7 at 24) We find the comparisons offered by CP&L witnesses Spann and Smith to be credible, and reject the comparisons by Mr. Komanoff, which rely on a flawed methodology.

The final issue with respect to the prudence of the Harris Plant is the question of whether a portion of the Plant should be treated as abandoned plant and amortized as an expense rather than be included in rate base.

Staff witness Watts recommended a portion of the Harris Plant No. 1 be considered as abandoned plant as it was originally designed and constructed as a functional part of units two, three and four which were previously abandoned. This amounted to $140,649,535 on a system basis and $20,038,179 to South Carolina retail jurisdiction. Staff also proposed a corresponding ten year amortization of these expenses with no earnings as has been approved by the Commission on other abandonments. Witness Watts testified that another alternative could be to spread these costs over the remaining license life of the plant which is approximately thirty-eight (38) years.

Consumer Advocate witness Miller, an accounting witness, not an expert on plant construction, testified that if any portion of the Plant should be excluded as being related to abandoned Unit No. 2, that the abandonment figure should be $569 million and not the $440 million recommended by Staff witness Watts. (TR. Vol. 14 at 215)

CP&L witness Parsons testified that all of the currently existing common facilities are needed for and used in the operation of Unit No. 1. Mr. Parsons explained that the completion of these facilities was also necessary to achieve an operating license and that when Unit Nos. 2, 3, and 4 were cancelled, it was more economical to complete the existing design rather than attempting to rearrange the facilities. He noted that the oversized common facilities are being utilized for a number of things, including offices for engineering and quality assurance, a technical support center, locker rooms and others. Mr. Parsons testified that if these items could not be housed in the common buildings, CP&L would have had to construct additional facilities in order to operate Unit No. 1. Mr. Parsons also stated that the Harris Plant also had the capability for storing spent fuel from all of CP&L's nuclear plants, which is a significant benefit given the current status of the federal government's actions concerning spent fuel storage. (TR. Vol. 22 at 25-27) Under cross-examination, Company witness Parsons more specifically quantified the additional expense above the stand alone cost of Harris Unit No. 1 as $440,000,000 with the total Spent Fuel Storage building included as an integral part of the Unit No. 1 facility. The Spent Fuel Storage facility costs amounted to $130,000,000. Staff witness Watts testified that the spent fuel storage building should not be included in excess facilities. Witness Watts stated that the Company needs the spent fuel storage to operate Unit 1. (TR. Vol. 20, p. 22-23 and 26-27)

The Commission finds, based on the testimony of Staff, that it should exclude the costs from rate base incurred above that necessary for Harris Unit No. 1 to exist as a stand alone unit but does not remove any of the cost of the Spent Fuel Storage Facility as the Commission finds, based on the Staff's and Company's testimony, that this facility is an asset to CP&L and its ratepayers. The Company will be allowed to recover these expenses in equal annual amounts over the remaining license life of the Harris nuclear plant, but will not be allowed to earn any return that may otherwise have accrued due to these dollars. The Commission finds this disallowance and subsequent amortization without a return over the license life of the facility to be an appropriate and equitable sharing of the risks, benefits, and costs among the Company, the shareholders, and ratepayers.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 8

The evidence for this finding concerning the reasonable level of test-year operating revenue deductions is found in the testimony and exhibits of Company witnesses Bradshaw and LaGuardia; Commission Staff witnesses Price, Sheely, and Watts; and Consumer Advocate witness Miller.

Unless otherwise specified, all numbers throughout the remainder of this Order are allocated as South Carolina retail.

The first area of difference relates to the Company's officers' salaries. Commission Staff witness Price recommended that the Company's O&M expenses be reduced by $8,037 which represents the difference in the level of officers' salaries between the 12 months ended September 1987 and the 12 months ended September 1986. Consumer Advocate witness Miller also recommended that an adjustment be made to reduce O&M by $43,000 which represents the test-year increase in officers' salaries. Witness Miller testified that this Commission made a similar adjustment in the Company's last general rate case. (TR. Vol. 14 at 186).

The $43,000 officers' salary elimination used by witness Miller came from CP&L's response to Staff Data Request No. 1, Question 64(G). This question asks for increases granted to officers during the test year who were officers at the beginning of the test year through the end of the test year. The Staff used an elimination adjustment of $8,037 which consisted of setting the officers' salaries at the 1986 level after considering promotions and terminations. The Commission finds that Staff's adjustment which has as its source, Staff Data Request No. 1, Response 64(a), is more appropriate in that Staff's adjustment allows for the net change in total officers' salaries.

The next disagreement relates to the appropriate level of Harris O&M expenses to include in this proceeding. The Company made an adjustment to increase test-year O&M expenses by $6,120,515 to reflect an annualized level of operating expenses of $9,183,635 for the Harris Plant. The basis for the Company's adjustment was the 1987 Harris Plant budget estimate.

Staff witness Sheely testified that the Staff recognized the need for an adjustment to reflect the added expense of operating the Harris Plant over the per books amount included in the test year. Witness Sheely proposed that O&M expenses for the Harris Plant be annualized based on actual dollars expended for the period May 1987 through March 1988. His adjustment resulted in a reduction of $1,127,473 to the Company's proposed expense level.

Consumer Advocate witness Miller recommended that the Harris Plant O&M expenses included in this case be reduced by $868,542. His recommedation was based on the annualized May through December 1987 actual O&M expenses for the Harris Plant. (TR. Vol. 14 at 180)

The Commission, after considering the proposals before it, finds that the Company's budget estimate does not meet the "known and measurable" principle used in ratemaking proceedings. Additionally, the Consumer Advocate's proposal only recognizes expenses incurred over eight months. Therefore, based on the

Staff's testimony, the Commission finds that the expense level recommended by the Staff should be adopted for purposes of this proceeding because the Staff based its adjustment on actual dollars expended for a longer period which more realistically reflects the actual level of Harris Plant O&M expenses presented by either the Consumer Advocate or the Company.

The next difference relates to miscellaneous general expenses. The Commission Staff and the Consumer Advocate made an adjustment to eliminate $9,739 from O&M expenses for the Company's sponsorship of sports teams, Pioneer Club expenses, and employee club dues. Based on the testimony of Consumer Advocate witness Miller, the Commission finds that these expenses should be eliminated because they do not provide a direct and primary benefit to the ratepayers.

The Commission Staff proposed an adjustment to amortize over ten years that portion of Harris Unit No. 1 that the Staff considers abandoned plant and an alternative adjustment of amortization over the remaining life of the plant, or 38 2/3 years. As discussed in Finding of Fact No. 7, the Commission has removed from the rate base a portion of the Harris Plant. The Commission finds that Staff's alternate proposal to amortize over the remaining license life of 38 2/3 years without a return is the most appropriate and should be approved because this alternate proposal provides a more equitable sharing between the Company, the shareholders and the ratepayers than the 10 year proposal.

The next area of disagreement is the proper level of pension expenses to include in O&M.

The Commission finds, based on the testimony of Commission Staff witness Price, that O&M expenses be reduced by $177,455 for pension expenses. This adjustment reflects the provisions of the Financial Accounting Standards Board Statement No. 87 (FASB No. 87) which were effective January 1, 1987.

The Company, Staff, and Consumer Advocate also disagreed on the proper level of cogeneration expenses to include in test year expenses. Based on the testimony of Commission Staff witness Sheely, the Commission finds that an adjustment to increase O&M expenses by $1,876,400 should be made. Witness Sheely based his adjustment on the 1988 contract rates which would be the rates in effect at the time revenues set in this proceeding become effective. The Commission finds that it should encourage the development of cogeneration and to deny contract rates as suggested by the Consumer Advocate is an inappropriate signal to this Company.

The next O&M issue between the Company and the Staff concerns the proper amount to include in O&M expenses for the buyback of Harris and Mayo generation from the NCEMPA.

In its filing, the Company made an adjustment to levelize the purchased capacity cost portion of the buyback of power from the Harris and Mayo units from NCEMPA. The levelization period used by the Company was the remaining life of the buyback for Mayo and ten years from the commercial operation date for the Harris Plant. No intervenor took exception to the levelization periods filed by the Company.

Based on the evidence presented in this proceeding by the Company, the Commission finds that the proper levelization period for Mayo is the remaining life of the contract; and the proper levelization period for Harris is ten years beginning with the commercial operation date for the Harris Plant. Additionally, the Commission finds that the levelization calculations should reflect the current South Carolina state income tax rate of 5.5 percent, based on the testimony of Staff witness Price. Also, the Commission finds that the difference between the levelized costs and the Company's actual Harris and Mayo purchased capacity payments should be placed in a deferred account and should accrue a return based upon the overall net-of-tax rate of return approved by the Commission in this proceeding. The Commission also finds that it would be appropriate to true-up this deferral account at the end of the levelization periods.

The next area of difference relates to the year-end payroll adjustment. In its filing, the Company included an adjustment to O&M expenses to reflect payroll expenses at the test year-end level. This adjustment increased O&M expenses by $214,540. The Commission Staff accepted the Company's adjustment. Consumer Advocate witness Miller testified that he agreed with the Company's adjustment in concept but recommended that no adjustment be made in this case for year-end payroll. Witness Miller testified that the Company annualized the payroll expense by using the number of employees at the end of the test period. He further testified that this was inappropriate in this instance because the September 1987 employee level was higher than in any period between October 1986 and February 1988. According to witness Miller, if the September level of employees is used, the ratepayers will be forced to bear labor costs that the Company is not incurring.

On cross-examination, Company witness Bradshaw stated that the Company's actual payroll for the 12 months ended May 1988 was higher than the annualized year-end payroll adjustment the Company included in this rate case. He testified that the Company used the payroll expense for the last month of the test year, September 1987, to reflect the ongoing level of payroll expenses (TR. Vol. 3 at 139). Witness Bradshaw explained that there were more employees in the month of September than in other months in the test year, but that the number of employees fluctuated from month to month, and that the Company had selected the last month of the test year so that the annualization adjustment would be consistent with past Commission policy. (TR. Vol. 3 at 40) Given the fact that this adjustment is consistent with past Commission policy and the fact that even with the adjustment the payroll expense for September 1987 is lower than the Company's ongoing level of payroll, the Commission finds that the Company's year-end payroll adjustment should be adopted as it appropriately approximates the current level of employees, does not force the ratepayers to pay costs not incurred, and should therefore be approved for ratemaking purposes.

The next difference concerns Edison Electric Institute (EEI) dues. Included in the Company's test year expenses is $45,627 related to EEI dues. The Commission Staff made no adjustment to exclude this expense. Consumer Advocate witness Miller testified that EEI dues should not be included in operating expenses for ratemaking purposes unless they result in some direct and primary benefit to consumers. He based his assertion on the fact that a number of EEI activities, including EEI's charitable contributions, memberships in social and service club organizations, donations, and advertising expenses, do not provide a primary benefit to consumers. He acknowledged that the Company had already excluded approximately two percent of EEI dues from test year expenses requested in this case. (TR. Vol. 15 at 199-203)

The Company maintains that only the portion of EEI dues that is charged below the line should be removed for establishing its allowable level of expense. Only two percent of EEI's total budget is spent on direct lobbying expenses according to EEI reports. However, the Company did not provide substantial evidence to support the inclusion of EEI dues. The Consumer Advocate's proposal, absent a sufficient showing by the Company that the ratepayers benefit from these activities, is consistent with previous Commission decisions concerning such expenses. Therefore, the Commission finds that the Consumer Advocate's adjustment to exclude those dues should be accepted.

The Consumer Advocate also made an adjustment to remove the test year expenses related to the Media Communications Fund (MCF). Witness Miller testified that based on his review of the 1984, 1985, and 1986 NARUC EEI oversight committee report, $5.8 million was spent for national advertising in 1986. He testified that it was his experience that this type of national advertising provides no direct and primary benefit to ratepayers. He also stated that because MCF advertising was national advertising, he could not understand how it could provide any direct and primary benefits to the Company's customers. (TR. Vol. 14 at 204-05)

Based on the testimony of witness Miller, the Commission finds that the Consumer Advocate's adjustment should be accepted. The Commission has traditionally eliminated charges to the Media Communications Fund.

Another area of disagreement concerns legal fees related to a United Mine Workers Association (UMWA) lawsuit and an antitrust suit filed by the North Carolina Electric Membership Corporation (NCEMC) and 16 of its 18 members who receive wholesale service from the Company.

Consumer Advocate witness Miller recommended eliminating $28,616 from O&M expenses ($14,310 for the UMWA and $14,306 for the antitrust lawsuit). Mr. Miller's basis for elimination of the UMWA expenses was that the Commission had previously determined that the Company should not be permitted to recover losses associated with the Leslie and McInnes coal mines. He further stated that the expenses for the antitrust case should be excluded for ratemaking purposes, and the defense of the Company's actions is the responsibility of the stockholders and not the ratepayers. (TR. Vol. 14 at 195-98)

CP&L witness Bradshaw explained that legal fees incurred in the test year with respect to lawsuits brought by the North

Carolina Electric Membership Corporation (NCEMC) and the United Mine Workers of America (UMWA) lawsuit were incurred as a result of suits that were still pending against the Company. (TR. Vol. 3 at 133-37) In response to South Carolina Consumer Advocate Interrogatory No. 2, Item 2-37, the Company stated that certain legal fees associated with the lawsuit of the UMWA against the Leslie Coal Mining Company and the McInnes Coal Company were included in the test year and specified the amount of the fees. (Hearing Exhibit No. 7) Consumer Advocate Witness Miller testified that legal fees associated with the UMWA lawsuit should be excluded from test year operating expenses for ratemaking purposes, because the Commission had previously determined that the Company should not be permitted to recover losses associated with the Leslie McInnes mines. (TR. Vol. 14 at 195) He further contended that these expenses related to activities which were not directly related to the provision of electric service. (TR. Vol. 14 at 196)

Consumer Advocate witness Miller also recommended that CP&L's ratepayers not bear litigation fees associataed with an antitrust action against the Company brought by the NCEMC and currently pending in federal court in North Carolina. Witness Miller stated that the defense of the Company's actions in the antitrust action was the responsibility of the stockholders and not the ratepayers. (TR. Vol. 14 at 197-98)

Company witness Bradshaw defended the inclusion of the UMWA and antitrust legal fees. He testified that the Company had an obligation to defend itself against any lawsuit. Witness Bradshaw stated that the legal expenses for the antitrust case were normal operating expenses of the Company, and that if CP&L did not defend itself it could incur costs much greater than the legal fees. (TR. Vol. 3 at 134-37)

Based on the Company's testimony, the Commission finds that the Consumer Advocate's adjustment to eliminate legal fees associated with the UMWA and antitrust lawsuits should be rejected. The Commission finds that the Company had an obligation to the ratepayers as well as the shareholders to defend itself against these lawsuits and that ratepayers benefit from the Company's defense of such lawsuits. The Commission finds no reason to separate these legal expenses from other expenses incurred by the Company during the test year. With respect to the UMWA lawsuit, the Commission notes from past proceedings that the coal mines in question were purchased by the Company to provide low-sulfur coal and CP&L's ratepayers did in fact receive a benefit from the low-sulfur coal supplied from these mines. (See Docket No. 77-354-E, Order No. 78-404) Although the mines were sold prior to the test period in this proceeding, and the Commission has in fact previously concluded that the Company should not recover for losses associated with the mines, the Company had no control over whether the union for the coal mines would file a lawsuit against it and the mine operator.

Another area of disagreement relates to an uncollectible expense adjustment made by witness Miller. Witness Miller recommended that net write-offs for calendar year 1986 be used instead of the test year uncollectible expense because the test year expense level is abnormally high as a result of the Company's revised customer deposit policy. Between 1986 and 1987, gross write-offs increased by approximately $1.3 million. This increase was due to an increased level of customer kWh sales, increased revenues billed, and the Company's revised customer deposit policy.

Witness Miller reduced test year O&M expenses by $24,248 to reflect the calendar year 1986 level of net write-offs. He stated that the Company's revised customer deposit policy works to the detriment of the majority of the ratepayers and recommended that the Commission instruct the Company to abandon this new customer deposit policy. (TR. Vol. 14 at 177-78) The Commission Staff did not adjust the amount included in the test year for uncollectible accounts.

On November 3, 1986, the Company informed this Commission of the change in its customer deposit policy. The Company stated in its letter of notification that this modification was to reflect the Company's ongoing commitment to provide high quality service as well as to address the specific needs of its customers. The Commission finds, based on the testimony of the Company, that the Company's deposit policy is within the Commission's Regulations and the benefits provided to the customers outweigh the costs. Therefore, the Consumer Advocate's adjustment is rejected.

Another area of disagreement is the Company's participation in the Nuclear Electric Insurance Limited (NEIL).

The Company is a member of NEIL which provides insurance coverage against incremental costs of replacement power resulting from prolonged accidental outages of members' nuclear generating units. NEIL is a utility industry-sponsored mutual insurance company.

Consumer Advocate witness Miller recommended that the Commission order the Company to produce NEIL's books and records and to have the Commission Staff conduct an audit. (TR. Vol. 14 at 194) A similar recommendation was made in CP&L's last general rate case, Docket No. 87-7-E. In that case, the Report of the Ad Hoc Committee on Insurance published by the National Association of Regulatory Utility Commissioners on March 4, 1987 was entered into evidence. The Commission takes judicial notice of this report which discussed the use of industry mutuals for nuclear coverage and the report states "There is no reason for regulators to be suspicious that the premiums charged by industry mutuals are unreasonably high relative to the Market. Indeed, over the long run, industry mutuals may be able to better furnish public utilities with the coverages they need at the same reasonable costs."

The Commission finds that no new evidence was provided in this proceeding to convince the Commission that it is necessary to order an audit of NEIL. Therefore, the Commission again finds, based on the evidence submitted by the Company, that the Consumer Advocate's recommendations be denied.

Based on the foregoing, the appropriate amount of total O&M expense for inclusion in rates in this proceeding is $177,208,000.

The next area of disagreement relates to depreciation expense. Company witness Bradshaw presented testimony and exhibits supporting a change in CP&L's depreciation rates. The recommended change in depreciation rates is summarized below:

	Current Rates	Proposed Rates
Production		
Steam	3.689	3.428
Nuclear	4.016	3.195
Hydro	1.170	1.414
Other	4.062	3.759
Transmission	2.376	2.699
Distribution	3.273	3.725
General	5.178	4.951

Company witness Bradshaw testified that the proposed depreciation rates include a component for removal cost, salvage, and ten years of interim activity. The life of the property for depreciation purposes was based on an actuarial methodology for non-production properties, consisting of Transmission, Distribution, and General properties. Life estimates utilizing industry averages were used for Hydro property and Internal Combustion Turbines. The life span methodology was used for production properties, consisting of Fossil Steam and Nuclear. Witness Bradshaw stated that the life span methodology allows for the evaluation of all factors affecting capital recovery by site location rather than by account. He explained that the items analyzed for each plant/unit were current plant investment; current accumulated depreciation; and projected additions, retirements, and replacements.

Fossil Steam Production property was grouped into one of three categories in order to establish remaining lives as a group. These three categories were based on capacity factors that incorporates future operating plans for the Fossil Steam units into a realistic estimated remaining service life for each unit. Group I property consists of units that would be operating at a capacity factor above 50-60 percent. A remaining life of 28 years was assigned to units in this group except for the two newest units, which were assigned a 33-year remaining life. Group II property consists of units that would be operating at a capacity factor above 10-20 percent but below 50-60 percent. A remaining life of 18 years was assigned to the units in this group. Group III property consists of units that would be operating at a capacity factor below 10-20 percent. A remaining life of seven years was assigned to the units in this group such that 95 percent of the depreciable investment would be recovered over the next seven years. Witness Bradshaw testified that due to the uncertainty of running the Group III units with such low capacity factors, there was a real need to have the majority of the capital investment recovered from these units in the near future. When considering all three groups, the age of each plant/unit plus its estimated remaining life, on average, was equal to a 40-42 year average life span.

The life of Nuclear Production property was also based on the life span methodology. Witness Bradshaw testified that the trend in the electric utility industry is to utilize the Nuclear Operating License when establishing operating lives for capital recovery purposes. Therefore, the Company's basis for establishing a remaining life for each nuclear unit was each unit's license expiration date as adjusted to reflect the Company's request for revised operating licenses for Brunswick Unit Nos. 1 and 2 and Robinson Unit No. 2. Witness Bradshaw testified that, due to the uncertainty of future regulations and infancy of the nuclear industry, he was recommending that Nuclear Production property depreciation rates to be set such that 95 percent of the depreciable investment be recovered approximately five years prior to the expiration of the Nuclear Operating License. He further testified that as each unit approaches the license expiration date, an economic analysis would be performed to determine the cost/benefit of additional investment for continued operation as compared to the cost of shutting down the plant.

There was no disagreement on the proposed depreciation rates between the parties for Non-Production property, Hydro Production property, and Internal Combustion Turbines. The Commission finds, based on the testimony of the Company, that the Company's proposed depreciation rates for these properties are approved with one exception.

Commission Staff witness Sheely testified that the Company's depreciation study was well done and recommended to the Commission that the Company's filed depreciation study be approved with the exception of the Company's depreciation study related to the proper depreciation rate for Nuclear Production Property. Witness Sheely testified that the Nuclear Production Property Depreciation rate should be based on a straight line depreciation rate which fully depreciates the value of a facility at the end of its operating license. He stated that the straight line depreciation method was a widely accepted method and had historically been accepted in this jurisdiction and should be approved in this proceeding. The Nuclear Production Property Depreciation rate recommended by witness Sheely is 2.85301 percent. For purposes of this proceeding, the Commission finds, based on the testimony of Staff, that the proper depreciation rate for Nuclear Production property is 2.85301 percent. Appendix A sets forth the approved depreciation rates by component.

The Company's adjustment to depreciation expense to reflect the year-end level of depreciation and inclusion of Harris Unit No. 1 depreciation is approved as adjusted by Staff for Nuclear Production Rates.

Consumer Advocate witness Miller only took exception to one portion of the Company's filed depreciation study. Witness Miller's exception related to the seven-year remaining life for Group III Fossil Steam Production property. He testified that in his opinion the seven-year lives were too speculative to be used to develop the remaining lives for Group III Fossil Steam Production property. He contended that the seven-year period is not known with enough specificity to be used in this case. He recommended that the Company monitor the situation and develop the remaining lives when the data is more known and measurable. Witness Miller recommended that the Commission approve the old rate for Group III

Fossil Steam Production property and approve the new rates for Group I and Group II production properties. (TR. Vol. 14 at 190-93)

Company witness Bradshaw testified than an average life span for Fossil Steam Production property is 40-42 years. Group III Fossil Steam Production property assuming 95 percent recovery results in an average life span of slightly more than 40 years, which is within the industry average life span for Fossil Steam Production property. Witness Bradshaw further stated on cross-examination that most companies in the industry use a 40-year life for this type of property and that the Company's recommended depreciation rates for Fossil Steam Production property as a group were slightly longer than the 40-year period.

Commission Staff witness Sheely testified on cross-examination that he believed witness Miller's adjustment was inappropriate and that either the Company's filed depreciation rates for fossil steam production property should be rejected or approved as a group. He further testified that these were base load plants being used for cycling which can shorten plant life considerably. He recommended that the rates proposed by the Company be approved. (TR. Vol. 19 at 195)

The Commission finds, based on the testimony of the Company and Staff, that the remaining lives for Fossil Steam Production property should be considered in total and not separated by individual groups. The Commission finds, as testified to by Company witness Bradshaw, that Fossil Steam Production property has an estimated life of slightly longer than 40 years, which is consistent with the industry average depreciation life span. The Commission further finds that the Company presented these new depreciation rates through a detailed study and that the Consumer Advocate's witness did not conduct a study. Therefore, the Commission rejects the Consumer Advocate's recommendation and finds that the depreciation rate for Fossil Steam Production property is 3.428 percent.

Other depreciation differences between the Company and the Commission Staff not related to the change in depreciation rates include: Non-Revenue Producing Plant, Robinson Dry Storage, and AFUDC on Harris Non-Project Land. Each of these items was discussed in other Findings of Fact, and the Commission Staff's position was adopted for each item. As discussed in this Finding of Fact, the Company's depreciation rates as adjusted by Staff for Nuclear Production were adopted and therefore should be used to calculate the depreciation expense associated with plant adjustments.

Based on the foregoing, the total allowable depreciation expense is $36,048,000.

Commission Staff witness Sheely also made an adjustment to depreciation expense based on the Staff's recommendation concerning the Harris Plant. As discussed earlier in Finding of Fact No. 7, the Commission accepted the Staff adjustment to treat a portion of Harris as abandoned plant; and therefore the related depreciation expense adjustment is accepted.

An issue related to depreciation expense is the amount of nuclear decommissioning costs to include in expenses. Company witness LaGuardia presented testimony supporting decommissioning estimates for the Brunswick, Robinson, and Harris nuclear units. Mr. LaGuardia's testimony reflected in mid-1987 dollars the cost to decommission the Company's nuclear units under two decommissioning processes: (1) prompt removal/dismantlement and (2) entombment/30-year delayed dismantlement. Included in both decommissioning cost estimates was a 25 percent contingency allowance. He testified that the purpose of the contingency is to allow for the costs of high probability program problems where the occurence, duration, and severity cannot be accurately predicted and have not been included in the basic estimate.

Based on the evidence presented by the Company, the Commission finds that the decommissioning estimates, including a 25 percent contingency factor, were reasonable and should be approved.

Company witness Bradshaw presented testimony supporting the depreciation provisions necessary to recover decommissioning costs for the Company's four nuclear units. Witness Bradshaw stated that, consistent with Commission approval in Docket No. 81-163-E, the Company is recommending the entombment with dismantling after a 30-year delay decommissioning process updated to mid-1987 price levels by Mr. LaGuardia. He stated that the entombed property will not require significant maintenance for 30 years, thus the 30-year delay option will allow taking advantage of the state of the art developed by other utilities which will have decommissioned units during the 30-year dormancy period. He also stated that the delay period will result in decreased exposure of personnel to radiation.

Company witness Bradshaw also presented testimony and exhibits supporting the modified internal sinking fund capital recovery methodology as approved by this Commission in Docket No. 81-163-E and requested again in this proceeding.

Commission Staff witness Sheely testified that he reviewed the report of Company witness LaGuardia and considered it reasonable and in line with decommissioning studies approved by this Commission for CP&L in previous cases and other jurisdictional utilities. Commission Staff witness Sheely recommended that the Company's decommissioning methodology as filed be accepted for ratemaking purposes in this proceeding. The Commission finds, based on the testimony of the Company and Staff, that the Company's site-specific decommissioning estimate, including a 25 percent contingency factor and the internal modified sinking fund capital recovery method, is appropriate for use in this proceeding and is hereby adopted. The Company's jurisdictional decommissioning expense approved for use in this proceeding is therefore $1,314,000.

The next area of disagreement relates to the Commission Staff's adjustment to decrease property taxes in conjunction with the Staff's adjustment to eliminate AFUDC on Harris non-project land included in Plant in Service. In Finding of Fact No. 11, the Commission determined that the Staff's adjustment was appropriate; therefore, the Commission also approves this adjustment.

The next area of disagreement relates to current income tax expense. Many of the contested revenue and expense adjustments, as well as rate base adjustments, will have an income tax effect and therefore require no explanation. The appropriate income tax expense for inclusion in operating revenue deductions is calculated using a 34 percent federal income tax rate and a 5.5 percent state income tax rate.

The Commission Staff adjusted the Company's deferred income tax expense (DIT) and investment tax credit (ITC) to reflect the depreciation rate for the Harris Plant recommended by Staff witness Sheely. Therefore, the Commission accepts this Staff's adjustment to DIT and ITC.

Further, the Commission will adjust DIT and ITC to reflect its treatment of the Harris Plant expenditure set forth in Finding of Fact No. 7.

The last operating revenue deduction item for discussion is the Harris deferred costs. The Company proposed in this case to begin to recover all Harris Plant costs deferred during the period May 2, 1987, to August 26, 1987, and costs for the 50 percent of the plant not included in rates on August 26, 1987, for the period ended August 26, 1987, through July 1988. The Company proposed that these deferred costs be amortized over 104 months which would allow the Company to recover these costs within ten years of the date of commercial operation of the Harris Plant in compliance with the requirements of Financial Accounting Standards Board Statement No. 92 (FASB No. 92).

The Commission accepts the Commission Staff adjustment to the Harris deferral to reflect the state income tax rate of 5.5 percent and to reflect the deferral to the date of the order in this case. Also, the Commission will adjust the Harris deferral to reflect the 5.5 percent state income tax rate for that portion of the Harris Plant treated in Finding of Fact No. 7. The Commission previously determined that the South Carolina state income tax rate of 5.5 percent should be used in calculating the Harris deferral. Therefore, the amortization of the Harris deferral appropriate for use in these proceedings is $5,125,000. Finally, the Harris deferral is to be amortized over ten years from the commercial operation date of the Harris Plant. The Commission also finds that it is appropriate to true-up this deferral account in a subsequent general rate case.

The Commission has considered all other adjustments to, or treatment of, revenues, expenses or rate base items proposed by the Staff in its presentation, not specifically addressed herein, and have found the adjustments fair and reasonable and adopted same for purposes of this proceeding as allocated to Company's South Carolina Retail operations pursuant to Staff's methodology. All other adjustments proposed by any party inconsistent therewith have been reviewed and found to be unreasonable or inappropriate for ratemaking purposes and are hereby denied.

The Commission hereby will adjust general taxes, state and federal income taxes, to reflect all adjustments herein approved.

The following chart summarizes the South Carolina retail operating revenue deductions adopted in this Finding of Fact:

Item	Amount ($000s)
O&M	177,208
Depreciation Expense	36,048
Taxes, Other Than Income	10,984
Current Income Taxes	13,838
Deferred Income Taxes	9,259
Investment Tax Credit	2,100
Interest on Customer Deposits	109
Harris Deferral (Net of Tax)	5,125
Total Operating Revenue Deductions	254,671

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 9

Capital Structure

The evidence for this finding concerning the appropriate capital structure and rate of return is found primarily in the testimony and exhibits presented by Company witnesses Bradshaw and Vander Weide, Staff witnesses Price and Rhyne, and Consumer Advocate witness Legler.

The following chart summarizes the positions of the parties regarding the appropriate capital structure for use in this proceeding:

	Company	Commission Staff	Consumer Advocate
Long-term Debt	47.50%	47.82%	47.82%
Preferred Stock	7.30%	7.46%	7.46%
Common Equity	45.20%	44.72%	44.72%
TOTAL	100.00%	100.00%	100.00%

Dr. Legler's prefiled testimony contained a capital structure based on the Company's actual March 31, 1988, capital structure. Dr. Legler testified that a 45 percent equity ratio is about average for a Single A-rated electric utility at the present time. (TR. Vol. 14 at 94). The Staff also recommended an actual March 31, 1988, capital structure.

Based on the evidence presented by the Consumer Advocate and Staff, the Commission finds that the capital structure proposed by the Consumer Advocate and the Commission Staff is appropriate for establishing an overall rate of return for the Company.

Accordingly, the Commission finds and concludes that the reasonable and appropriate capital structure for CP&L in this proceeding is a capital structure as follows:

Item	Percent
Long-term Debt	47.82%
Preferred Stock	7.46%
Common Equity	44.72%
TOTAL	100.00%

Regarding the cost rates for long-term debt and preferred stock, the parties filed as follows:

	Company	Commission Staff	Consumer Advocate
Long-term Debt	8.73%	8.62%	8.62%
Preferred Stock	8.75%	8.75%	8.75%

Based on the evidence presented by the Consumer Advocate and Staff, the Commission finds that the appropriate embedded cost rates of long-term debt and preferred stock to be used in this proceeding are the actual embedded cost rates at March 31, 1988, of 8.62 percent and 8.75 percent, respectively, as propsed by the Consumer Advocate and Commission Staff.

The testimony and exhibits of the financial witnesses for the Company, the Commission Staff and the Consumer Advocate demonstrated an approach to their respective investigations of the cost of common equity of CP&L within the parameters of the language of the United States Supreme Court in its decision in Federal Power Commission vs. Hope Natural Gas Co., 320 U.S. 591 (1944), at 603:

> [T]he return to the equity owner should be commensurate with the return on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.

The United States Supreme Court's landmark decision in Bluefield Water Works and Improvement Co. v. Public Service Commission of West Virginia, 262 U.S. 679 (1923), delineated general guidelines for determining the fair rate of return in utility regulation. In the Bluefield decision, the Court stated:

> What annual rate will constitute just compensation depends upon many circumstances and must be determined by the exercise of a fair and enlightened judgment, having regard to all relevant facts. A public utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risk and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and

> should be adequate under sufficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties. A rate of return may be reasonable at one time, and become too high or too low by changes affecting opportunities for investment, the money market, and business generally.
>
> 262 U.S. at 692-693.

During the subsequent year, the Supreme Court refined its appraisal of regulatory precepts. In its frequently cited Hope decision, supra, the Court restated its view:

> We held in Federal Power Commission v. Natural Pipeline Gas Co....that the Commission was not bound to the use of any single formula or combination of formulae in determining its rates. Its ratemaking function, moreover involves the making of 'pragmatic adjustments' (cite omitted).... Under the statutory standard of 'just and reasonable' it is the result reached, not the method employed which is controlling (Citation omitted)....
>
> The ratemaking process under the Act, i.e., the fixing of 'just and reasonable' rates involves a balancing of the investor and the consumer interests. Thus we stated in the Natural Gas Pipeline Co. case, that regulation does not insure that the business shall produce net revenues. (Citations omitted).
>
> But such considerations aside, the investor interest has a legitimate concern with the financial integrity of the company whose rates are being regulated. From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock. (Citation omitted). By that standard the return on the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital.
>
> 320 U.S. at 602-603.

The vitality of these decisions has not been eroded, as indicated by the language of the more recent decision of the Supreme Court in IN RE: Permian Basin Area Rate Cases, 390 U.S. 747 (1968). This Commission has consistently operated within the guidelines set forth in the Hope decision.

The cost of common equity is an estimate and necessarily involves judgment in its determination. (Tr., Vol. I, Vander Weide, at 97). In most cases, and this case is no exception, the cost of common equity is the most controversial aspect of the cost of capital. The estimates of the appropriate cost of common equity to be applied in this case range from 12.25%, the bottom end of the broad range provided by Staff witness Rhyne to 13.5% the estimate of Dr. Vander Weide, the Company's witness. The Commission finds that, based on testimony of the Consumer Advocate and Staff, that the cost of equity of 12.75% should be adopted. It approximates the midpoint of Dr. Rhyne's broad range of estimates and is at the lower end of his best point estimate. It is the point estimate recommended by Dr. Legler. (Tr., Vol. 20, Rhyne, at 97).

Staff witness Rhyne relied on the discounted cash flow (DCF) approach and the Capital Asset Pricing Model. (Tr., Vol. 20, Rhyne, at 54-55). Dr. Legler, the Department of Consumer Affairs witness, placed primary reliance on the discounted cash flow (DCF) approach, supporting his recommendation with a risk premium analysis and a review of earned returns of comparable electrics. (Tr., Vol. 14, Legler, at 86).

Dr. Rhyne recommended a cost of common equity between 12.75

percent and 13.00 percent and Dr. Legler recommended a best point estimate of 12.75% based on their DCF studies and supporting methodologies. The recommendations of Drs. Rhyne and Legler did not include adjustment for issuance costs.

Dr. Vander Weide's version of the DCF model explicitly provides for an issuance cost adjustment. This is accomplished by adjusting the price variable in the DCF model. Dr. Vander Weide used a 5% adjustment factor which includes 3% for issuance costs and 2% for market pressure. But as discussed in Dr. Legler's testimony the market pressure component is transitory and not necessarily positive. Dr. Rhyne did not include a market pressure component within his methodology for deriving an issuance cost adjustment.

Dr. Vander Weide's approach to the issuance cost adjustment basically amounts to providing an equity return on the Company's accumulated issuance expense during roughly the last forty years. (Tr., Vol. 2, Vander Weide, at 25-30). Essentially, this treats the accumulated issuance costs as a perpetual equity investment. Thus, Dr. Vander Weide is of the opinion that whether or not the Company intends to issue common stock in the future is irrelevant. The Commission finds, based on the testimony of the Consumer Advocate and Staff, that Dr. Vander Weide's approach is inappropriate for several reasons.

First, Dr. Vander Weide's approach assumes that the Commission has never provided any recovery for issuance costs. There is no documentation to support this claim.

Second, Dr. Vander Weide's approach assumes that market pressure was present on all past issues. As shown in Dr. Legler's Schedule 15 (Hearing Exhibit 119), such is not the case. Therefore, the Commission finds that Dr. Vander Weide's adjustment for market pressure is unsupportable and inappropriate.

Dr. Rhyne (TR., Vol. 20, Rhyne at 68) set forth the basis for his approach for considering issuance costs within his testimony. Dr. Rhyne stated:

> "This approach is applied where one is seeking to allow a utility to recover reasonable issuance expenses related to a specific issuance of common stock. Under this approach, if a utility has recently issued common stock or has plans to issue additional common stock during the time period in which the rates resulting from the case are expected to be in effect, an adjustment would be appropriate to recover issuance expenses."

The Company has no plans to issue common equity in the near future (TR., Vol. 20, Rhyne at 69). Therefore, the Commission finds that an issuance cost adjustment in this case would be inappropriate.

In summary, this Commission finds, based on the testimony of the Consumer Advocate and Staff, that adoption of a recommended return on common equity of 12.75% would enable CP&L to maintain its financial integrity, attract capital required on reasonable terms, fairly balance consumer and investor interests, and provide a return comparable to that available to companies of comparable risk. Therefore, the Commission finds that 12.75% conforms to the mandates of Hope and Bluefield. The Commission finds that the assumptions adopted by Dr. Rhyne in the application of his methods are reasonable. The Commission finds that Dr. Rhyne's conclusions are supported by the studies of Dr. Legler. Accordingly, this Commission adopts the cost of common equity recommended by Drs. Rhyne and Legler, i.e. 12.75%.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 10

The evidence for this finding concerning the appropriate level of Working Capital can be found in the testimony and exhibits of Company witnesses Nevil and Bradshaw, Commission Staff witness Price, and Consumer Advocate witness Miller.

The Commission Staff's elements of working capital allowance and materials and supplies are presented in the table below:

			($000s)
Materials and Supplies			16,990
Working Capital Allowance			
	Base Working Capital Allowance		17,741
	Add:	Minimum Bank Balances	383
		Prepayments	5,983
	Less:	Average Tax Accruals	(6,811)
		Operating Reserves	(503)
		Accounts Payable Included in Plant	(2,023)
		Nuclear Mutual Limited Reserve	(1,265)
		Unclaimed Funds	(112)
		Customer Advances for Construction	(224)
Total Working Capital Allowance			13,169
Total Materials and Supplies and Working Capital Allowance			30,159

The Commission finds, based on the testimony of Staff, that the maximum draw-down method should be used to calculate an appropriate level of coal inventory. The Staff's proposal was accepted in the last CP&L rate case and has been accepted in prior rate cases.

The next area of disagreement relates to two Commission Staff adjustments to the calculation of the working capital allowance.

First, the Commission finds, based on Staff's testimony, that an adjustment to reduce Working Capital Allowance by approximately $224,000 to reflect the availability to the Company of Unclaimed Funds should be approved. Second, the Commission finds, based on the Staff's testimony, that working capital treatment should not be permitted for the Robinson Dry Storage demonstration program.

The Company calculated a cash allowance using the one-eighth formula consistent with the Commission's directive and with Commission findings in prior cases. Commission Staff witness Price also supported the continued use of the one-eighth formula. Based on the Company and Staff's testimony, the Commission finds that the one-eighth formula continues to be the appropriate method for calculating the allowance for cash working capital.

The next issue involves the appropriate level of customer deposits to use in the cost of service. The Company deducted Customer Deposits from rate base using the per book balance at the end of the test year consistent with the Commission treatment in prior rate orders. Commission Staff witness Price also deducted Customer Deposits from rate base using the per book balance at the end of the test year. Consumer Advocate witness Miller recommended, in conjunction with his position regarding the Company's revised deposit plan, that the rate base deduction for customer deposits be based on a 13-month average for the period September 1986 through September 1987. He stated that by using a

13-month average, the full impact of the Company's revised policy will not be borne by the customers. The Commission finds that the end-of-period balance, as reflected on the Company's books, is the most appropriate method to use in this case based on the testimony of the Company and Staff. The Consumer Advocate's position is rejected based on the Commission's rejection of the Consumer Advocate's position on the Company's revised deposit plan.

The following table provides the appropriate values accepted by the Commission for the working capital allowance and materials and supplies:

Item	Amount ($000s)
Material & Supplies	16,990
Working Capital Allowance	13,169
TOTAL	30,159

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 11

The evidence supporting these findings concerning the proper value for rate base is found in the testimony of Company witness Bradshaw, Staff witnesses Price and Watts, and Consumer Advocate witness Miller, as well as from Finding of Fact No. 7.

The difference between the Company and the Commission Staff concerning rate base items are presented in the following table:

Item	Company	Commission Staff	Difference
Plant in Service	1,119,226	1,086,241	(32,985)
Depreciation Reserve	(208,890)	(205,741)	3,149
Net Nuclear Fuel	28,758	28,758	0
Plant Held for Future Use	2,562	2,562	0
Accumulated Deferred Income Taxes	(107,070)	(106,580)	490
Materials and Supplies	17,398	16,990	(408)
Cash Working Capital	12,622	12,254	(368)
Total Rate Base	864,606	834,484	(30,122)

The first issue relates to an adjustment made by Commission Staff witness Price. Witness Price made an adjustment to reduce Plant in Service by $5,493,777 to eliminate the Robinson Waste Solidification System from plant in service. This project had not been completed but was included in per books plant in service. The Commission finds, based on his testimony, that the Commission Staff's adjustment should be accepted.

Another area of disagreement relates to an adjustment the Company made to include non-revenue producing plant in Plant in Service. In its filing, the Company made an adjustment to increase Plant in Service for non-revenue producing plant projects that were anticipated to be completed by June 1988. This adjustment increased Plant in Service by $15,095,767. Consumer Advocate witness Miller testified that the Company's adjustment reflects a projected amount that is not known and will not be known by the close of the hearings in this proceeding. He further stated that this adjustment actually constitutes an inclusion of construction work in progress and, as such, there should be some consideration of an AFUDC offset. (TR. Vol. 14 at 171-172). Commission Staff witness Watts agreed with the Company's adjustment but recommended that only those projects which were actually closed at March 31, 1988, be included in Plant in Service. The Staff therefore recommended an adjustment to increase plant in service by only $8,674,925. (TR. Vol. 19 at 219)

The Consumer Advocate's proposal to include some consideration of an AFUDC offset is inappropriate because the adjustment's purpose is designed to acknowledge that those projects that were closed by March 31, 1988, will no longer accrue AFUDC. Staff accordingly closed these short-term construction projects to Plant in Service and also computed Depreciation Expense on the closed projects. It would be inappropriate to reflect AFUDC on completed plant and based on the evidence presented by Staff, the Commission finds that the Commission Staff's adjustment is the proper amount to be included in this proceeding. The Consumer Advocate's proposal is therefore rejected.

Another area of disagreement between the Company and the Commission Staff relates to AFUDC on Harris non-project land that was included in Plant in Service as a cost of the Harris Plant. At the time land was purchased for the Harris Plant, the actual purchase price and associated overheads were recorded in

Construction Work in Progress, using one expenditure requisition. As a result of the sale of a portion of Harris to the NCEMPA, the Company divided the Harris land into two expenditure requisitions so the land not directly associated with the Harris Project would be severed from the project. All AFUDC and associated overhead costs remained as a cost of the required Harris project land; therefore, the Company is reflecting AFUDC on the Harris non-project land in plant in service.

Commission Staff witness Watts made an adjustment to reduce plant in service by $1,032,128 to eliminate AFUDC and the associated overhead costs on the Harris non-project land included in Plant in Service. Based on the testimony of Staff, the Commission finds the adjustment should be approved since the property is not used and useful in providing electric service.

The final difference between the Company and the Commission Staff concerning Plant In Service relates to Staff witness Watts' adjustment of $20,038,179 to reflect the amortization of that portion of the Harris Plant that the Staff proposed be treated as abandoned plant. In light of the treatment adopted supra to the Harris Plant costs, the Staff's proposal here must be denied. The Commission finds that $440,000,000 for the entire Harris project or $52,556,000 on a South Carolina Retail Basis shall be removed from plant in service for the reasons set forth in Finding of Fact No. 7.

Consumer Advocate witness Miller recommended that the remaining portion of the Harris Plant, not yet included in rates, be phased in over a period not to exceed ten years, to mitigate rate shock. He testified that each year's increase should be limited to 5 percent. (TR. Vol. 14 at 138-140) The Consumer Advocate's proposal was made in reference to the Company's proposed 14.9 percent rate increase. The actual rate increase granted by the Commission is 7.75 percent, considerably less than what was proposed. The Commission finds that the phase in suggested by the Consumer Advocate is not necessary in this case to mitigate rate shock.

All of the differences between the Company and the Staff concerning the depreciation reserve were discussed in Finding of Fact No. 9 under the discussion of depreciation expense and therefore no further discussion is required here.

The difference between the Company and the Staff concerning the accumulated deferred income taxes (ADIT) relates to the Staff's adjustment for Harris Unit No. 1 abandonment and Staff's exception to the Nuclear Production Depreciation Rates. As discussed in Finding of Fact No. 7, the Commission has removed a portion of Harris Unit No. 1 from rate base and has accepted Staff's Nuclear Production Depreciation Rate; therefore, the Commission finds that Staff's corresponding adjustment to ADIT is also accepted and a like adjustment will be made to reflect the Commission's treatment of the Harris Plant expenditures in Finding of Fact No. 7.

The differences between the Company and the Commission Staff relating to Materials and Supplies and Cash Working Capital were discussed in Finding of Fact No. 10.

Based upon the foregoing discussion, the following table provides the appropriate jurisdictional amounts for each rate base item as approved by the Commission:

Item	($000s)
Plant In Service	1,053,723
Depreciation Reserve	(204,888)
Net Nuclear Fuel	28,758
Plant Held for Future Use	2,562
Accumulated Deferred Income Taxes	(105,376)
Materials & Supplies	16,990
Working Capital Allowance	13,169
Customer Deposits	(915)
Total Rate Base	804,023

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 12

The Commission has previously set forth the evidence supporting its findings of fact and conclusions regarding the fair rate of return which CP&L should be afforded an opportunity to earn.

The record in this proceeding demonstrates that the wholesale operations of the Company at the present time generate a lower rate of return than the overall rate of return for the various classes of jurisdictional retail customers. The Commission finds that the Company should continue to try to correct this situation by means including the institution of ratemaking proceedings before the FERC. The Commission finds that rates should not be approved which have the effect of subsidizing non-jurisdictional operations through earnings derived from utility operations within the Commission's jurisdiction. It is the overall rate of return of the entire Company that a potential investor analyzes. The Commission finds that to the extent that the Company fails to earn a proper return on its non-jurisdictional service, there is a direct, adverse impact on the retail customer. The Commission will expect the Company to continue to take all reasonable steps to correct this situation.

The following schedules summarize the gross revenues, the rates of return which the Company should have a reasonable opportunity to achieve based upon the determinations made herein and the Capital Structure of the Company. Such schedules, illustrating the Company's gross revenue requirements, incorporate the findings of fact and the conclusions made herein by the Commission. The approved increase shall be applied in like proportions to the proposed increase as per Staff recommendation.

SCHEDULE I
CAROLINA POWER & LIGHT COMPANY
DOCKET NO. 88-11-E
STATEMENT OF OPERATING INCOME
TWELVE MONTHS ENDED SEPTEMBER 30, 1987
(000'S OMITTED)

	Before Increase	Approved Increase	After Increase
Operating Revenues	$322,664	$24,980	$347,644
Operating Expenses			
Operating & Maintenance Expenses	177,208		177,208
Depreciation Expense	36,048		36,048
Taxes Other Than Income	10,984	75	11,059
State Income Taxes	3,293	1,370	4,663
Federal Income Taxes	10,545	8,002	18,547
Deferred Income Taxes	9,259		9,259
Deferred Investment Tax Credit	2,100		2,100
Interest on Customer Deposits	109		109
Total Operating Expenses	249,546	9,447	258,993
Net Operating Income	73,118	15,533	88,651
Add: Customer Growth	623	132	755
Deduct: Harris Deferral	5,125		5,125
Total Income for Return	$ 68,616	$15,665	$ 84,281

SCHEDULE II
CAROLINA POWER & LIGHT COMPANY
SOUTH CAROLINA RETAIL OPERATIONS
DOCKET NO. 88-11-E
STATEMENT OF RATE BASE AND RATE OF RETURN
TWELVE MONTHS ENDED SEPTEMBER 30, 1987
(000'S OMITTED)

Item	Amount
Investment in Electric Plant	
Electric Plant In Service	$1,053,723
Net Nuclear Fuel	28,758
Accumulated Depreciation	(204,888)
Accumulated Deferred Income Taxes	(105,376)
Plant Held For Future Use	2,562
Net Investment in Electric Plant	774,779
Allowance for Working Capital	
Investor Funds Advanced for Operations	13,169
Materials and Supplies	16,990
Other Rate Base Additions and Reductions	(915)
Total	29,244
Original Cost Rate Base	$ 804,023
Rate of Return	
Present	8.53%
Approved	10.48%

SCHEDULE III
CAROLINA POWER & LIGHT COMPANY
SOUTH CAROLINA RETAIL OPERATIONS
DOCKET NO. 88-11-E
STATEMENT OF CAPITALIZATION AND RELATED COSTS
TWELVE MONTHS ENDED SEPTEMBER 30, 1987
(000'S OMITTED)

Item	Capital-ization Ratio (%)	Original Cost Rate Base ($)	Embedded Cost (%)	Net Operating Income ($)
	Present Rates - Original Cost Rate Base			
Long-Term Debt	47.82	384,522	8.62	33,146
Preferred Stock	7.46	59,954	8.75	5,246
Common Equity	44.72	359,547	8.40	30,224
Total	100.00	804,023		68,616
	Approved Rates - Original Cost Rate Base			
Long-Term Debt	47.82	384,522	8.62	33,146
Preferred Stock	7.46	59,954	8.75	5,246
Common Equity	44.72	359,547	12.75	45,889
Total	100.00	804,023		84,281

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 13

Evidence for this finding concerning rate design, rate schedules, and service regulations is found in the testimony and exhibits of Company witnesses Edge and Spann, Commission Staff witness Watts, South Carolina Department of Consumer Affairs witness Ileo, South Carolina Energy Users Committee witness Phillips, and Nucor witness Goins. Proposals of the parties in this proceeding are described below.

General Rate Design and Allocation of Revenues

CP&L witness Edge testified that the Company's rate design objective is to move toward uniform rates of return for all customer classes. Since class rates of return are continually changing as cost relationships and customer usage changes, the Company strives to design rates that result in a rate of return for each customer class that does not vary by more than 10 percent from the South Carolina retail rate of return. Based on the rate design proposed by the Company in this proceeding, all customer classes, except the lighting class, fall within this 10 percent range. To achieve the 10 percent objective, the Company proposed a higher-than-average increase for the Small General Service and Medium General Service rate schedules and a lower-than-average increase for the rate schedules of the Large General Service, the Residential and the Lighting classes.

The Commission has reviewed the testimony involving the appropriate rate design and allocation of revenues among the rate classes. The Commission finds, based on the testimony of the

Company, that the Company's approach is appropriate and therefore approved. The Commission finds that this approach tends to encourage stability, reduce rate shock, and over time will result in more uniform rates of return among the classes and the rate schedules within those classes. The Commission concurs with the Company's proposal to minimize increases to the Lighting class revenue in this proceeding and to maintain this course of action until such time as the Lighting class rate of return reaches the overall retail rate of return.

Residential Class

The Company proposed a standard residential service (RES) schedule with a conservation discount and two time-of-use schedules for its residential class. Miscellaneious charges applicable to the RES schedule include a 25-cent increase in the Basic Facilities Charge and an increase in the charge for three-phase service for all residential schedules to $9.00.

The Commission finds based on the Company's testimony, that the increase in the charge for three phase service for all residential schedules is granted. The Commission finds that there was insufficient evidence in the record to support an increase in the Basic Facilities Charge, therefore, that increase is denied.

CP&L witness Edge testified that the Company had implemented numerous enhancements to encourage its customers to participate in the TOU program. Those enhancements included a comparative billing program; introduction of the all-energy R-TOUE rate as approved by this Commission in CP&L's last rate case, Docket No. 87-7-E; more acceptable contract period provisions; inclusion of holidays in the off-peak period; inclusion on residential and SGS customer bills of monthly and annual cumulative savings derived from their participation in a TOU rate; and a TOU computer program designed to predict the potential savings a residential customer may realize by switching to a TOU rate. In January 1987, the Company had 386 customers on its R-TOUD rate. By March, 1988, 1,425 customers were on the R-TOUD and R-TOUE rates, of which six were R-TOUE customers. Mr. Edge testified that promotion of time-of-use rates was a way to encourage the Company's customers to get full benefit from the use of their electricity at a lower cost. Additionally, it helps to hold down the Company's future costs because they would not have to build as much plant in order to serve the load as well as given an improved load factor. In regard to the seasonal demand pricing differential contained in the R-TOUD rate schedule, witness Edge testified that the summer peak is the primary peak as far as customer usage, kW and kWh, was concerned. Consequently, the Company should signal to its customers, through rate designs, that the summer peak is the primary peak. This was accomplished by the Company charging a higher on-peak demand charge during the summer months than the remaining months in its R-TOUD rate schedule. The seasonal differential contained in the on-peak energy charges of the R-TOUE rate, as explained by witness Edge, was determined by rolling the demand charge and the on-peak energy charge of the R-TOUD rate into one on-peak rate for the R-TOUE schedule.

The Commission finds, based on the Company's testimony, that the rate design for R-TOUD and R-TOUE rates should be approved, as filed except that no increase is granted for any basic facilities charge and demand and energy charges should be reduced to match allowed class revenue. The Commission finds these rates to be revenue neutral as they are based on the same level of revenue as the residential class. The Commission finds that 94 percent of the R-TOUD customers will continue to save money by participating in this rate, and therefore concludes that the percentage rate increase required to meet the approved revenue increase should be approved. With the addition of more than 1,000 residential time-of-use customers in 15 months, the Commission recognizes the Company's efforts in the promotion of these rates. The Company is recommending seasonal pricing differentials for the R-TOUD schedule consistent with the pricing structure previously approved by this Commission; therefore, the Commission approves the seasonal demand differential in the R-TOUD rate schedule. The Commission also recognizes that the R-TOUE seasonal on-peak differential is derived from the R-TOUD on-peak energy charges as well as the seasonal demand charges; and since previously approving the R-TOUD seasonal differential, the Commission likewise approves the R-TOUD seasonal on-peak energy differential. The Commission finds the energy differential for the R-TOUE rate to be appropriate and provides the proper incentive for R-TOUE customers to shift their usage into the off-peak periods.

General Service Class

The Company proposed seven active and two frozen schedules for its General Service class of customers. The Commission finds, based on the Company's testimony, that the withdrawal of frozen rate schedule RFS (Rural Farm Service) and the increase in rates applicable to schedules CSG (Church and School Service) and CSE (Church and School Service - All-Electric) by approximately 10 percent more than other schedules in order to gradually merge these schedules with the SGS/MGS/SI schedules over time is approved. The late payment charge for general service customers and the Company's proposed changes to its three-block demand rate structure and transformation discounts for the LGS schedules are approved as filed. Other miscellaneous changes in the General Service class include an increase in the charge for three-phase service to $9.00 in the SGS schedule; an increase in the basic facilities charge for the SGS Time-Of-Use schedule to $21.00, an increase in the kilowatt-hour charge in the Minimum Billing Provision of SGS-TOU to 2.130 cents per kilowatt-hour; and a change in the Contract Period provision in the SGS, SGS-TOU, and LGS schedules in this class to specify that construction or temporary service will be rendered in accordance with Plan E. The Company also proposed to modify the SGS-TOU and SGS-TES schedules to increase the rates and charges so that the schedules are revenue neutral when compared to the combined revenue received from the Small General Service, Medium General Service, and Seasonal or Intermittent Service customers. The Commission finds, based on the

Company's testimony, that these proposed changes are approved as filed with the exceptions of 1) the proposed increase in the basic facilities charge which is denied, 2) the Basic Facilities charge for the new (MGS) will be set at $9.10, the same as that for (SGS), and 3) the minimum billing provision of SGS-TOU shall be reduced in like proportion to the proposed increase.

Witness Edge proposed the availability of three new rate schedules in place of the existing Small General Service (SGS) schedule: a new SGS schedule applicable to customers with electrical requirements less than 30 kW, a Medium General Service (MGS) rate schedule applicable to customers with electrical requirements from 30 kW to less than 1,000 kW, and a Seasonal or Intermittent Service rate schedule (SI) which replaces the previous Seasonal or Intermittent Service Rider No. 5 for loads of 30 kW or more. Witness Edge testified that the Company is proposing these changes to simplify administration of the rate schedules, to enhance customer understanding of available schedules, and to minimize the costs of metering.

Commission Staff witness Watts testified that the redesign is acceptable and appropriate but that the Company's proposed rates will impose too drastic a change on some low load factor, low-use customers. The Staff recommendations would include a redesign of the MGS schedule which would produce the approved revenue while reducing the Basic Facility Charge and the Demand Charges for the first 30 kW to lessen the impact on low-load factor, low-use customers.

South Carolina Energy Users Committee witness Phillips testified that customers presently on SGS with electrical requirements of 30 kW or more should not be required to take service under the MGS schedule but should be allowed to remain on a frozen version of the present-type SGS schedule.

Witness Edge testified under cross-examination that it is not appropriate to allow customers in the load range from 30 kW to 1,000 kW to remain on the SGS schedule when MGS is the appropriate rate schedule. To do so would result in revenue erosion not provided for in this case, as it allows existing customers to choose the most advantageous rate, and would also create another frozen rate schedule to be phased out in the future. The Commission finds, based on the testimony of the Company, that the request of the SCEUC should be denied. Witness Edge strongly urged that the proposed restructuring of these rates should be implemented for all eligible customers; but if the restructuring as proposed by the Company is not adopted by the Commission, then the presently effective SGS rate design adjusted for the approved revenue increase should remain in effect.

The Commission, based on the testimony of the Company and Staff, finds that this restructuring as proposed by the Company involving the rate design of the new SGS-MGS-SI should be approved with Staff's proposed recommendations because it will enhance customer understanding of available schedules and result in a significant reduction in future metering costs by greatly reducing the need for demand meters for customers with usage below 30 kW.

LGS Block Demand Charge and Transformation Discount

Witness Edge proposed continuation of the three-block demand charges for Large General Service (LGS) customers as approved in the last general rate case. The Company's proposal in this proceeding included three demand billing blocks: first 5,000 kW, next 5,000 kW, and over 10,000 kW. The Company's proposal also includes an additional \$.50 and \$1.00 differential in the second and third billing blocks, respectively, compared to the previously approved block demand charges in order to more fully reflect the differences in the costs to serve different load levels.

Witness Edge also proposed the continuation of the service voltage discount as it was approved in the last general rate case, with a title change to "Transformation Discount," and language changes to clarify the description covering the discount when the customer owns transformation equipment that the Company would normally own.

The Company proposed increasing the Transmission Service Transformation Discounts from \$0.49/kW to \$0.55/kW and \$0.0004/kWh to \$0.0005/kWh. The Company also proposed increasing the Distribution Service Transformation Discount from \$0.60/kW to \$0.75/kW, but maintaining the kWh discount at \$0.0001/kWh. The pricing of both the demand block charges and the transformation discounts were supported by the Company's cost-of-service study.

The Commission finds that Nucor did not offer any testimony or evidence in this proceeding to contest or rebut the changes to the Large General Service rate schedule proposed by the Company as contained in the Company's Application. Nucor offered nothing at the hearing to alert the Company or the Commission that Nucor took issue with CP&L's proposed wording change to the availability of transformation credits. Accordingly, the Commission approved the rate schedule changes as proposed by CP&L. (TR. Vol. 5 at 38) The only evidence with respect to this issue was in the form of CP&L's filing of the rate schedule with the modifications proposed by CP&L and CP&L's explanation of the reason it intended to change the language in the rate schedules.

CP&L witness Edge testified on cross-examination that (TR. Vol. 5 at 38-39, 57; Vol. 6 at 63-64) CP&L had increased the discounts in the LGS rate since the last rate case. He stated that the increases were based on the cost of service. He testified that he thought the increase was sufficient at this point and that the discount was being phased in over a number of rate cases. He stated that the additional discounts given to some customers had to be made up for by other customers and therefore he did not think it would be appropriate to shift more costs at this time.

The Commission finds, based on the Company's testimony, that it is reasonable to gradually implement voltage level discounts to avoid severe impacts on specific customers. The Commission finds that such discounts are cost-based (see Hearing Exhibit No. 34) and that the changes proposed by the Company are appropriate. The Commission finds, as to the issues raised by Nucor, that CP&L's proposal on the service voltage discount should be approved and Nucor's proposals are denied. The Commission finds that Order No.

87-902, pp. 72-75 adequately sets forth the reasoning for the Commission's denial of Nucor's requested relief in the last proceeding. Nucor did not appeal any issues in that Order. The Commission finds that it is appropriate for CP&L to have made the clarifying changes in its tariff in this Docket. The Commission therefore concludes that the Company's proposed declining demand blocks and transformation ownership discounts incorporated in the LGS schedule should be approved.

The Commission concludes that the three-block demand structure and transformation discounts proposed by the Company for the LGS schedules are appropriate and are therefore approved. However, no increase in the Basic Facilities Charge is approved.

Lighting Class

The Company proposed five active schedules for its Lighting class of customers with an overall increase of 1.6 percent because of the higher-than-average rate of return calculated for this class under both the present and proposed rates. The only proposed increase in the Area Lighting Service (ALS), Street Lighting Service (SLS), and Street Lighting Service Residential Subdivisions (SLR) schedules is an increase in the prices for retrofit sodium-vapor fixtures, which the Commission finds, based on the evidence of the Company, should be approved as filed at the level commensurate with the approved revenue increase. The Commission also finds that the discontinuation of the 2,500 lumen incandescent fixtures in the SLS Schedule should be approved. In addition, the Commission finds that the Company's proposals to increase the

Traffic Signal Service Schedule proportionally to the approved revenue increase as well as, the minimum charge in the Traffic Signal Service Schedule and the connect/disconnect charge in the Sports Field Lighting Schedule should be approved.

Service Riders, Plans, and Service Regulations

The Company proposed to restrict the availability of Seasonal or Intermittent Service Rider No. 5 to existing Rider No. 5 customers with electrical requirements of less than 30 kW until the next occurrence of their first facilities charge month at which time they will be automatically transferred to the SGS schedule. Existing customers with electrical requirements of 30 kW and above would be transferred automatically to the SI schedule upon approval of the SI schedule. The Company proposed an increase in the charges and credits in Rider No. 5 to reflect the Company's cost of providing service under this Rider. The Commission finds, based on the Company's testimony, that the proposed changes for Rider No. 5 should be approved.

The Company proposed to restructure Highly Fluctuating and Intermittent Load Rider No. 9 to base the charge of serving such loads on the kVa capacity which must be installed to maintain proper voltage and to remove its availability for breaker or fault-testing laboratories. The Company also proposed to withdraw Standby and Supplementary Service Time-Of-Use Rider No. 61, under which no customers are presently receiving service, and supersede it with a new Back-Up and Supplementary Service Rider No. 66. Concurrently the Company proposed to restrict the availability of

Standby and Supplementary Service Rider No. 7 to exclude new applications received on and after the date of the Company's filing in this docket and increase the charges in Rider No. 7 to better reflect the Company's cost incurred in providing standby service. There being no opposition to these proposals, the Commission finds that the Company's uncontested recommendations be approved but times the exclusion of new applications to the effective date of this Order.

The Company proposed modifications to Cotton Ginning Rider No. 42, whereby it would be used in conjunction with the new Seasonal or Intermittent Service Schedule (SI). Rider No. 42 would be available for cotton ginning customers agreeing to curtail operation of their equipment upon a 30 minutes notice from the Company. The monthly bill would be computed in accordance with the new SI schedule, except that the seasonal facilities charges would be waived to compensate the customer for curtailing the customer's energy use at the Company's request. The Commission finds, based on this uncontested testimony, that the modifications should be approved.

The Company proposed continuation of Curtailable Load Rider No. 58. This Rider provides for a credit to participating General Service customers who agree to curtail their electrical load to a specified "firm demand" level. The credit is paid to the customer based on the difference between their billing demand for the month and the contracted firm demand level. Provisions in the Rider allow the customer to choose between 4-hour or 8-hour curtailable periods with 200-hour or 400-hour cumulative 12-month maximums, respectively. Curtailments may be based on capacity or economy (energy cost) conditions. CP&L's proposed curtailable credits ($3.50 per kW for 8-hours and $2.50 per kW for 4-hours) as stated by witness Edge (TR. Vol. 5 at 130) were originally calculated in 1982 based on embedded combustion turbine capacity. Mr. Edge further testified that based on calculations using the incremental cost of a new combustion turbine with a 5-year levelized carrying charge, which includes the effects of inflation for 5 years, the resulting 8-hour discount is $3.10. CP&L, however, chose to leave the discount at the $3.50 level, rather than lower it, to provide stability and a consistent price signal to those customers currently receiving service under Rider No. 58.

Nucor witness Goins stated in prefiled testimony that the credits proposed by CP&L were too low. He further presented exhibits and testimony which proposed credits of $7.00 and $5.00 for the 8-hour and 4-hour curtailments, respectively. Dr. Goins disagreed with CP&L's use of a 68 percent coincidence factor and stated that the correct value to use should be 100 percent. Dr. Goins also disagreed with CP&L's calculation of the fuel credit for the 8-hour curtailment credit stating that it should be calculated based upon the difference between combustion turbine fuel cost and average fuel cost. Dr. Goins also disagreed with CP&L's use of real rather than nominal carrying charges as utilized in his exhibits. In addition, Nucor proposed a penalty structure for failure of the customer to comply with a capacity curtailment request. Additionally, Nucor proposed the elimination of the Economy Curtailment provision in Rider No. 58.

Commission Staff witness Watts presented a curtailable load credit of $3.70 (8-hour) based on using an 85 percent coincidence factor and a new combustion turbine. Mr. Watts further recommended the elimination of the 4-hour curtailment credit because the 8-hour period provides more value to the system and should therefore be standardized.

The Commission finds that there is insufficient evidence in the record to support the elimination of the Economy Curtailment provision of Rider No. 58 or to support the penalty structure proposed by Nucor and therefore concludes that they should be denied and the language currently in Rider No. 58 will remain in effect. The Commission further finds, based on Staff's testimony, that the 4-hour curtailable period from Rider No. 58 should be eliminated.

The Commission has reviewed the Company's proposal to maintain the Curtailable Credit of $3.50, Staff's proposal of $3.70 and Nucor's proposal of $7.00. In order to encourage the use of the Curtailable Load Rider and to obtain the objectives of such Rider, the Commission finds that the credit should be raised to a level somewhat higher than that proposed by the Company and Staff. On the other hand, the Commission finds that if the credit is set at too high a level, an adverse impact on the Company and its other ratepayers will result. Therefore, in an effort to encourage the use of the Rider and also in an effort to ensure that an adverse impact will not result, the Commission finds that the Curtailable Credit should be set at $5.00. This level is subject to re-examination in future cases to ensure the appropriateness thereof.

The Company proposed to modify its Service Regulations to incorporate load build-up and suspension of service provisions previously addressed in Rider No. 5, increase the Service Charge to $13.00, and increase the Reconnect Charge to $15.00 during business hours and $30.00 during other than normal business hours. Other proposals by the Company included revisions to the charges and credits specified in Plan E and removal of the Revenue Credit allowance for temporary service customers under Plan E. All changes in charges and provisions included in the Company's proposd service riders, plans, and Service Regulations and Plan E are approved as filed, except for the proposed increases to the service charge, and reconnect charges. The Commission finds that there was insufficient evidence to justify increases in these charges and therefore concludes that they should be denied.

Based on its review of the Company's rate design, the Commission concludes that the rate design, rate schedules, and terms and conditions for service proposed by the Company should be approved as modified herein. All other charges and options in tariffs, service regulations, and riders proposed by the Company not addressed elsewhere and not opposed by any other party are approved.

Sales and Franchise Tax or Payment in Lieu Thereof

In accordance with the Commission's order in the last general rate case, witness Edge proposed tariffs which incorporate the change to collect sales and franchise taxes or fees directly from customers within the jurisdiction of the local or state body assessing such charges. Upon approval, the Company will separately state these charges on the affected customers' monthly bills.

Commission Staff witness Watts proposed somewhat different language to be included on the Company's tariffs to more clearly explain this charge.

The Commission finds that the inclusion of this provision in the Company's tariffs with the language as proposed by witness Watts should be approved to read as follows:

> "SALES AND FRANCHISE TAX OR PAYMENT IN LIEU THEREOF:
> To the above charges will be added any applicable South Carolina Sales Tax, and for those customers within any municipal or other local governmental jurisdiction, an appropriate amount to reflect any franchise fee, business license tax, or similar percentage fee or tax, or charge in lieu thereof imposed by such entity."

The Commission also finds that the Company should itemize any said tax or fee as a separate line item on the customer's monthly bill.

Uncontested Rate Design Proposals

Witness Edge proposed numerous changes to the Company's tariffs that were uncontested by the parties in this proceeding. The Commission finds that these changes, as summarized below, are approved.

Payment Provisions

The Company revised its residential schedules to indicate that all bills are payable within 25 days from the date of the bill in lieu of the 15-day period currently stated in the residential schedules. The payment period applicable to general service schedules was proposed to remain at 15 days. The Company further proposed a change in the Payment Provision of all schedules to permit a charge of 1 percent for bills not paid on or before the expiration of 25 days from the date of the bill, effective on and after January 1, 1989. The late payment charge for residential customers would not be applicable when the customer (1) has no previous arrears during the past 12 months, and (2) has been a customer at this location for a continuous 12-month period. The Commission finds that those customers who pay after 25 days from the date of the bill should be responsible for the carrying cost instead of the Company's other customers. The Commission finds that the late payment charge of 1 percent is within the limits as stated in R.103-339(3) of the Commission's Regulations. The Commission finds that South Carolina Energy Users Committee's request for a waiver of the late payment charge for Industrial customers is denied.

Other

The filing by the Company with the Commission, of quarterly reports for its retail electric and total jurisdictional operations, including rate of return on approved rate base; return on common equity (allocated to South Carolina retail electric operations); earnings per share of common stock; and debt coverage ratio of earnings to fixed charges, enables the Commission to maintain supervision of the Company's financial conditions during periods other than a general rate case proceeding. The Commission therefore finds that the Company should continue filing such reports and that such reports should be filed within sixty (60) days of the end of the calendar quarter which is the subject of such reports.

The Commission finds that the Company should maintain its books and records for its South Carolina Retail Electric Operations utilizing FERC Uniform System of Accounts.

The Consumer Advocate made a recommendation that the Company abandon its New Customer Deposit policy and require all new residential customers to make a security deposit. The Commission finds that this recommendation should be denied because the Company is now handling customer deposits properly pursuant to our regulations and in the best interest of their customers. The Consumer Advocate also made a recommendation that the Company be required to perform a class cost of service study by March 1989, based on year-end 1987 data. The Commission also denies this recommendation at this time but will consider it when CP&L files for further rate relief. The Consumer Advocate also requests that the Company develop and file within sixty (60) days written training manuals for its customer service personnel which direct these employees to discuss time-of-use rates, as well as other rates, to encourage their use and acceptance. The Commission denies this request because it finds that there is no evidence that the Company's customer service personnel are not adequately trained concerning time of use rates and pursuant to our regulations, customers are provided with information at the time of application and annually concerning these rates. The Consumer Advocate further requests that the Commission order the Company to prepare and begin filing within sixty (60) days, quarterly reports concerning the activities of CP&L's Marketing Division. The Commission denies this request finding that there was insufficient evidence to support the necessity of the Company filing such reports at this time.

IT IS THEREFORE ORDERED:

1. That Carolina Power & Light Company shall implement the rate designs, rate schedules, and terms and conditions for service as proposed by the Company or as modified herein to be effective for service rendered on and after August 31, 1988.

2. That the Company file for approval by August 31, 1988, rate schedules in accordance with the findings contained herein.

3. That the Company file the Reports identified herein in accordance with our findings.

4. That this Order shall remain in full force and effect until further Order of the Commission.

BY ORDER OF THE COMMISSION:

Marjorie Amos-Frazier
Chairman

ATTEST:

Charles W Ballentine
Executive Director

(SEAL)

CAROLINA POWER & LIGHT COMPANY
APPROVED DEPRECIATION ACCRUAL RATES
INCLUDES NET SALVAGE

Production Plant/Unit	Approved Depreciation Accrual Rate
GROUP #1	
Asheville #1	0.03122
Asheville #2	0.02981
Roxboro #1	0.03012
Roxboro #2	0.03378
Roxboro #3	0.02827
Roxboro #4	0.02658
Mayo #1	0.02822
TOTAL GROUP #1	0.02850
GROUP #2	
Cape Fear #1	0.03831
Cape Fear #2	0.04149
Cape Fear #5	0.04012
Cape Fear #6	0.04320
Lee #3	0.03853
Robinson #1	0.03789
Weatherspoon #3	0.03990
Sutton #3	0.04382
TOTAL GROUP #2	0.04129
GROUP #3	
Lee #1	0.07256
Lee #2	0.05744
Sutton #1	0.07186
Sutton #2	0.10249
Weatherspoon #1	0.03905
Weatherspoon #2	0.07917
TOTAL GROUP #3	0.07382
TOTAL FOSSIL STEAM @ 12/31/85	0.03428

NOTE: Fossil Steam rates include 5% negative salvage for FERC Accounts 311 and 312 and 5% positive salvage for FERC Account 316.

CAROLINA POWER & LIGHT COMPANY
APPROVED DEPRECIATION ACCRUAL RATES
INCLUDES NET SALVAGE

Production Plant/Unit	Approved Depreciation Accrual Rate
NUCLEAR PLANTS	
Robinson #2	0.044842
Brunswick #1	0.029723
Brunswick #2	0.030268
Nuclear Excluding Harris @ 12/31/86	0.033759
Harris #1 @ 4/30/87	0.026211
TOTAL NUCLEAR	0.028530
HYDRO UNITS	
Blewett	0.012712
Tillery	0.013470
Walters	0.015958
Marshall	0.013392
TOTAL HYDRO @ 4/20/85	0.014140
OTHER UNITS	
Cape Fear	0.036170
Weatherspoon	0.037664
Lee	0.036694
Sutton	0.035294
Roxboro	0.034283
Robinson	0.034267
Blewett	0.038196
Morehead	0.036448
Darlington	0.039200
Wilmington	0.038781
TOTAL OTHER @ 4/30/85	0.037589

NOTE: Nuclear rates include 5% negative salvage for FERC Accounts 321 and 322 and 5% positive salvage for FERC Account 325. Hydro and Other Production rates include 0% salvage. Terminal decommissioning of the nuclear plants is not covered in this table but is addressed separately in other parts of this Order.

CAROLINA POWER & LIGHT COMPANY
APPROVED DEPRECIATION ACCRUAL RATES
INCLUDES NET SALVAGE

		APPROVED RATES		
		AVERAGE SERVICE LIFE	NET SALVAGE	ANNUAL ACCRUAL RATE
350	Land Rights	75S1.5	0%	0.01336
352	Structures & Improvements	60R3	-30%	0.02241
353	Station Equipment	50L1	-5%	0.02008
354	Towers & Fixtures	50S2	-30%	0.02749
355	Poles & Fixtures	30L1.5	-40%	0.05181
356	Conductors & Devices	45L1.5	-25%	0.02912
359	Roads & Trails	75R4	0%	0.01643
	TOTAL TRANSMISSION @ 12/31/85			0.02699
360	Land Rights	30R3	0%	0.04622
361	Structures & Improvements	40L0.5	-15%	0.03020
362	Station Equipment	38L1	-25%	0.03391
364	Poles, Towers & Fixtures	33L0	-50%	0.04698
365	OH Conductor & Devices	35LO.5	-35%	0.04271
366	Underground Conduit	50R4	-5%	0.01877
367	Underground Conduit & Devices	35R2	0%	0.02913
368	Line Transformers	30S1	10%	0.02687
369	Services	40L0.5	-30%	0.02935
370	Meters	30S1	-35%	0.04804
371	Installation on Customer Premises	12L0.5	0%	0.07663
373	Street Lighting & Signal	24L0	0%	0.03617
	TOTAL DISTRIBUTION @ 12/31/85			0.03725
389	Land Rights	75S4	0%	0.01410
390	Structures & Improvements	40S1	25%	0.01891
391	Office Furniture & Equipment	20L0	15%	0.04453
392	Transportation Equipment	8L1.5	25%	0.06718
393	Stores Equipment	25L1.5	40%	0.01641
394	Tools, Shop and Garage	35R2	15%	0.02403
395	Laboratory Equipment	15L0	5%	0.07518
396	Power Operated Equipment	12S2	35%	0.03475
397	Communications Equipment	20L1	5%	0.04937
398	Miscellaneous Equipment	35S1	5%	0.02464
	TOTAL GENERAL @ 12/31/85			0.04951